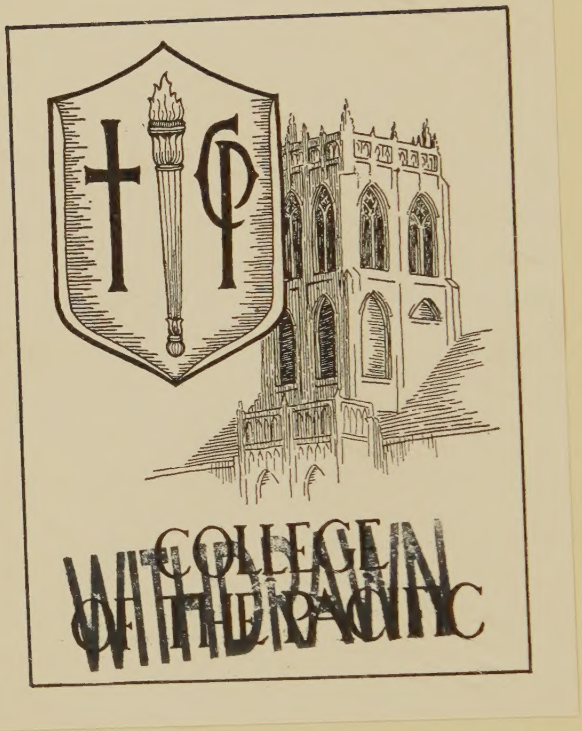

COLLEGE
WITHDRAWN

THE

PHILOSOPHICAL WORKS

OF

LEIBNITZ.

COMPRISING

The Monadology, New System of Nature, Principles of Nature and of Grace, Letters to Clarke, Refutation of Spinoza, and his other important philosophical opuscules, together with the Abridgment of the Theodicy and extracts from the New Essays on Human Understanding.

TRANSLATED FROM THE ORIGINAL LATIN AND FRENCH.

WITH NOTES

BY

GEORGE MARTIN DUNCAN,

Instructor in Mental and Moral Philosophy, Yale University.

NEW HAVEN.
TUTTLE, MOREHOUSE & TAYLOR, PUBLISHERS.
1890.

BUREAU OF AMERICAN ETHNOLOGY
5442
1896
LIBRARY

41281
S 1741

BUREAU AM ETHNOLOGY

B
2558
1890

COPYRIGHT, 1890,
BY
TUTTLE, MOREHOUSE & TAYLOR.

11-19544
1/8/54

INTRODUCTION.

THIS translation of the more important philosophical works of Leibnitz furnishes much needed assistance to all teachers of philosophy and its history, in this country or in England. Until recently no collection, at once complete and trustworthy, of the writings of this great and versatile thinker has ever been made. The magnificent edition of Gerhardt has now rendered it possible for the translator to select, from all the recorded philosophical utterances of Leibnitz (including his voluminous and elaborate letters), those portions which will give the most satisfactory survey of his system of thinking. The selections of the present volume appear judicious; they are sufficient to afford a tolerably comprehensive and circumstantial account of this system.

It is not, however, to teachers of philosophy alone that I commend this volume. The interests and scholarship of Leibnitz were unexampled as respects range and variety. He was eminent in mathematics, physical science, languages, history, theology, philosophy, and belles-lettres. Even his more definitely philosophical writings are framed in accordance with this varied eminence. They therefore contain much which appeals to any person who is inclined at all to approach the problems of philosophy, from whatever point of view. Their style is free from certain characteristics which lovers of good literature often find repulsive in works of more definitely pedagogical, or systematic and technical, character. Indeed, the principal tenets of Leibnitz are all to be discovered, at least in their inchoate form, in his interesting and instructive letters to various notable persons of his day.

It has not been possible for me to compare any considerable portion of this translation with the original. But my confidence in Mr. Duncan's competence and accuracy of scholarship is so great that I have no doubt of its excellence.

It gives me great pleasure, therefore, to welcome, and to aid in introducing this book. It certainly fills—and, I believe, it well fills—an important gap in our philosophical literature.

GEORGE TRUMBULL LADD.

Yale University, December, 1890.

PREFACE.

This translation has been made with the hope of rendering the speculations of one of the greatest of modern thinkers more accessible to ordinary students. Whatever estimate may be taken of the intrinsic merits of these speculations, their influence has been too marked to allow the student of philosophy to ignore them. He will here find all that is necessary to enable him to gain a comprehensive insight into Leibnitz's own system and to understand the objections found by him to the philosophy of his great predecessors, Descartes, Malebranche, Spinoza, Locke. All the important philosophical opuscules are given entire; also the abridgment of the *Theodicée* and extracts from the *Nouveaux Essais*. A few notes and references have been added to help the student. The translations have been made directly from the original Latin and French by my wife and myself, the only exception being the *Letters to Clarke*, which are republished from Clarke's own translation. In making the translations Erdmann's *Leibnitii Opera Philosophica* (Berlin, 1840), Janet's *Oeuvres Philosophiques de Leibniz* (Paris, 1866), Gerhardt's *Die philosophischen Schriften von G. W. Leibniz* (Berlin, 1875–1890), and Foucher de Careil's *Refutation Inédite de Spinoza par Leibniz* (Paris, 1854), have been used.

G. M. D.

Yale University, Nov. 30, 1890.

TABLE OF CONTENTS.

	Page
I—On the Philosophy of Descartes, 1679–1680,	1
II—Notes on Spinoza's *Ethics*, c. 1679,	11
III—Thoughts on Knowledge, Truth and Ideas, 1684,	27
IV—On a General Principle useful in the Explanation of the Laws of Nature, 1687,	33
V—Statement of personal views on Metaphysics and Physics, 1690,	37
VI—Does the Essence of Body consist in extension? 1691,	41
VII—Animadversions on Descartes' *Principles of Philosophy*, books 1 and 2, 1692,	46
VIII—Reply of Leibnitz to the Extract of the Letter of Foucher, canon of Dijon, published in the *Journal des Savans* of March 16, 1693,	64
IX—On the Philosophy of Descartes, 1693,	66
X—On the reform of Metaphysics and of the Notion of Substance, 1694,	68
XI—A New System of Nature, and of the Interaction of Substances, as well as of the Union which exists between the Soul and the Body, 1695,	71
XII—The Reply of Foucher to Leibnitz concerning his New System, 1695,	81
XIII—Explanation of the New System, 1695,	85
XIV—Second Explanation of the New System, 1696,	90
XV—Third Explanation of the New System, 1696,	92
XVI—Observations on Locke's *Essay on Human Understanding*, 1696,	94
XVII—On the Ultimate Origin of Things, 1697,	100
XVIII—On Certain Consequences of the Philosophy of Descartes, 1797,	107
XIX—On Nature in Itself, 1698;	112
XX—Ethical Definitions, 1697–1698,	127
XXI—On the Cartesian Demonstration of the Existence of God, 1700–1701,	132
XXII—Considerations on the Doctrine of a Universal Spirit, 1702,	139
XXIII—On the Supersensible in Knowledge and on the Immaterial in Nature, 1702,	149
XXIV—Explanation of Points in his Philosophy, 1704,	159
XXV—On the Principle of Life, 1705,	163
XXVI—Necessity and Contingency, 1707,	170
XXVII—Refutation of Spinoza, c. 1708,	175
XXVIII—Remarks on the Doctrine of Malebranche, 1708,	185
XXIX—On the Active Force of the Body, the Soul, and the Souls of Brutes, 1710,	190
XXX—Abridgment of the *Theodicy*, 1710,	194
XXXI—On Wisdom—the Art of Reasoning, etc., 1711,	205
XXXII—The Principles of Nature and of Grace, 1714,	209
XXXIII—The Monadology, 1714,	218
XXXIV—On the Doctrine of Malebranche, 1715,	233
XXXV—Five Letters to Samuel Clarke, 1716,	238
XXXVI—Extracts from the *Nouveaux Essais*, 1704,	287
Notes.	363

"One day I happened to say that the Cartesian philosophy in so far as it was true was but the ante-chamber of the true philosophy. A gentleman of the company who frequented the Court, who was a man of some reading and who even took part in discussion on the sciences, pushed the figure to an allegory and perhaps a little too far; for he asked me thereupon, if I did not believe that it might be said that the ancients had shown us the stairs, that the modern school had come as far as into the ante-chamber, and that he should wish me the honor of introducing us into the cabinet of nature? This tirade of parallels made us all laugh, and I said to him 'You see, sir, that your comparison has pleased the company: but you have forgotten that there is the audience chamber between the ante-chamber and the cabinet, and that it will be enough if *we* obtain audience without pretending to penetrate into the interior.'"

Leibnitz, *Letter to a friend on Cartesianism*, 1695.

LEIBNITZ.

I.

On the Philosophy of Descartes. 1679–1680.

[From the French.]

As to the Philosophy of Descartes, of which you ask my opinion, I do not hesitate to say absolutely that it leads to atheism. It is true that there are some things very suspicious to me who have considered it attentively: for example, these two passages, that final cause ought not to be considered in physics, and that matter takes successively all the forms of which it is capable. There is an admirable passage in the *Phaedo* of Plato which justly blames Anaxagoras for the very thing which displeases me in Descartes. For myself, I believe that the laws of mechanics which serve as a basis for the whole system depend on final causes; that is to say, on the will of God determined to make what is most perfect, and that matter does not take all possible forms but only the most perfect; otherwise it would be necessary to say that there will be a time when all will be evil in turn, which is far removed from the perfection of the author of things. As for the rest, if Descartes had been less given to imaginary hypotheses and if he had been more attached to experiments, I think that his physics would have been worthy of being followed. For it must be admitted that he had great penetration. As for his geometry and analysis they are far from being as perfect as those pretend who are given but to the investigation of minor problems. There are several errors in his metaphysics, and he has not known the true source of truths nor that general analysis of notions which Jung, in my opinion, has better understood than he. Nevertheless, I confess that the reading of Descartes is very useful and very

instructive, and that I like incomparably more to have to do with a Cartesian than with a man from some other school. Finally, I consider this philosophy as the ante-chamber of the true philosophy.—*Extract from a letter to Philipp, 1679.*

I esteem Descartes almost as highly as it is possible to esteem a man, and although there are among his opinions some which appear to me false and even dangerous, I do not hesitate to say that we owe almost as much to Galileo and to him in matters of philosophy as to all antiquity. I remember at present but one of the two dangerous propositions of which you wish me to indicate the place, viz: *Principiorum Philosophicorum Part. 3, Articulo 47, his verbis:* "Atque omnino parum refert, quid hoc pacto supponatur, quia postea justa leges naturae est mutandum. Et vix aliquid supponi potest ex quo non idem effectus, quanquam fortasse operosius, deduci possit. Cum enim illarum ope *materia formas omnes quarum est capax successive assumat*, si formas istas ordine consideremus, tandem ad illam quae est hujus mundi poterimus devenire, adeo ut hic nihil erroris ex falsa hypothesi sit timendum." I do not think that it is possible to form a more dangerous proposition than this. For if matter receive successively all possible forms it would follow that nothing so absurd, so strange and contrary to what we call justice, could be imagined, which has not occurred or would not some day occur. These are exactly the opinions which Spinoza has more clearly explained, namely, that justice, beauty, order belong only to things in relation to us, but that the perfection of God consists in a fullness of action such that nothing can be possible or conceivable which he does not actually produce. This is also the opinion of Hobbes who maintains that all that is possible is past, or present, or future, and that there will be no room for relying on providence if God produces all and makes no choice among possible beings. Descartes took care not to speak so plainly, but he could not help revealing his opinions in passing, with such address that he would not be understood save by those who examine profoundly these kinds of subjects. This, in my opinion, is the πρῶτον ψεῦδος, the foundation of atheistic philosophy, which does not cease to say things beautiful in appearance of God. But the true philosophy ought to give us an entirely different notion of the perfection of God which could serve us

both in physics and in morals; and I, for my part, hold that far from excluding final causes from the consideration of physics, as Descartes pretends, Part 1, Article 28, it is rather by them that all should be determined, since the efficient cause of things is intelligent, having a will and consequently tending toward the Good, that which is still far from the opinion of Descartes who holds that goodness, truth and justice are so simply because God by a free act of his will has established them, which is very strange. For if things are not good or bad, save by an effect of the will of God, the good will not be a motive of his will since it is subsequent to the will. And his will would be a certain absolute decree, without reason; here are his own words, *Resp. ad object. sext. n. 8:* "Attendenti ad Dei immensitatem manifestum est, nihil omnino esse posse quod ad ipso non pendeat, non modo nihil subsistens, sed etiam nullum ordinem, nullam legam, nullamve rationem veri et boni, alioqui enim, ut paulo ante dicebatur, non fuisset plane indifferens ad ea creanda quae creavit [he was then indifferent as regards the things which we call just and unjust, and if it had pleased him to create a world in which the good had been forever unhappy and the wicked (that is to say, those who seek only to destroy the others) happy, that would be just. Thus we cannot determine anything as to the justice of God, and it may be that he has made things in a way which we call unjust, since there is no notion of justice as respects him, and if it turns out that we are unhappy in spite of our piety, or that the soul perishes with the body, this will also be just.—He continues]: Nam si quae ratio boni ejus per ordinationem antecessisset, illa ipsum determinasset ad it quod optimum est faciendum [without doubt, and this is the basis of providence and of all our hopes; namely, that there is something good and just in itself, and that God, being Wisdom itself, does not fail to choose the best]. Sed contra quod se determinavit ad ea jam sunt facienda, idcirco, ut habetur in Genesi, sunt valde bona [this is cross reasoning. If things are not good by any idea or notion of goodness in themselves, but because God wills them, God, in Genesis, had but to consider them when they were made and to be satisfied with his work, saying that all was good; it would have sufficed for him to say, I will it, or to have remembered that he willed them, if there is no formal difference between the two things, to be willed by God, and to be good. But

it is apparent that the author of Genesis was of another opinion, introducing a God who would not be content with having made them unless he found further that he had made them well.] hoc est ratio eorum bonitatis ex eo pendet, quod voluerit ipsa sic facere." This is as distinct an expression as one could desire. But after this it is useless to speak of the goodness and justice of God, and providence will be but a chimera. It is evident that even the will of God will be but a fiction employed to dazzle those who do not sufficiently strive to fathom these things. For what kind of a will (good God!) is that which has not the Good as object or motive? What is more this God will not even have understanding. For if truth itself depends only on the will of God and not on the nature of things, and the understanding being necessarily BEFORE the will (I speak *de prioritate naturae, non temporis*), the understanding of God will be before the truth of things and consequently will not have truth for its object. Such an understanding is undoubtedly nothing but a chimera, and consequently it will be necessary to conceive God, after the manner of Spinoza, as a being who has neither understanding nor will, but who produces quite indifferently good or bad, and who is indifferent respecting things and consequently inclined by no reason toward one rather than the other. Thus, he will either do nothing or he will do all. But to say that such a God has made things, or to say that they have been produced by a blind necessity, the one, it seems to me, is as good as the other. I have been sorry myself to find these things in Descartes, but I have seen no means of excusing them. I wish he could clear himself from these, as well as from some other imputations with which Morus and Parker have charged him. For to wish to explain everything mechanically in physics is not a crime nor impiety, since God has made all things according to the laws of mathematics; that is, according to the eternal truths which are the object of wisdom.

There are still many other things in the works of Descartes which I consider erroneous and by which I judge that he has not penetrated so far in advance as is imagined. For example, in geometry, I do not really believe that he has made any paralogism (as you inform me that some one has said to you); he was a sufficiently skillful man to avoid that, and you see by this that I judge him equitably; but he has erred through too much presumption,

holding all for impossible at which he saw no means of arriving; for example, he believed it was impossible to find a proportion between a curved line and a straight line. Here are his own words: *Lib. 2. Geom., articulo 9 fin. editionis Schotenianae de anno. 1659. p. 39: cum ratio quae inter rectas et curvas existit, non cognita sit nec etiam ab hominibus ut arbitror cognosci queat.* In which, estimating the powers of all posterity by his own, he was very much mistaken. For a little while after his death a method was found of giving an infinity of curved lines to which could be geometrically assigned equal straight lines. He would have perceived it himself if he had considered sufficiently the dexterity of Archimedes. He is persuaded that all problems may be reduced to equations (*quo modo per methodum qua utor*, inquit, p. 96. lib. 3. Geom., *id omne quod sub Geometricam contemplationem cadit, ad unum idemque genus problematum reducatur, quod est ut quaeratur valor radicum alicujus aequationis*). This is wholly false, as Huygens, Hudde and others who thoroughly understand Descartes' geometry, have frankly avowed to me. This is why there is need of much before algebra can do all that is promised for her. I do not speak lightly and there are few people who have examined the matter with as much care as I.

The physics of Descartes has a great defect; this is that his rules of motion or laws of nature, which should serve as its foundation, are for the most part false. There is demonstration of this. His great principle also that the same quantity of motion is preserved in the world is an error. What I say here is acknowledged by the ablest men of France and England.

Judge from this, sir, whether there is reason for taking the opinions of Descartes for oracles. But this does not hinder me from considering him an admirable man, and for saying between ourselves that if he still lived perhaps he alone would advance farther in physics than a great number of others, although very able men. That befalls me here which ordinarily befalls moderate men. The Peripatetics regard me as a Cartesian, and the Cartesians are surprised that I do not yield to all their pretended lights. For when I speak to prepossessed men of the school who treat Descartes with scorn, I extol the brilliancy of his qualities; but when I have to do with a too zealous Cartesian I find myself obliged to change my note in order to modify a little the too high opinion which they have of their

master. The greatest men of the time in these matters are not Cartesians, or if they have been in their youth they have gotten over it, and I notice among the people who make a profession of philosophy and of mathematics, that those who are properly Cartesians ordinarily remain among the mediocre and invent nothing of importance, being but commentators of their master, although for the rest they may be more able than the man of the school.—*Letter to Philipp, Jan., 1680.*

[The following is an extract from a letter of about the same date as the preceding and on the same subject, written to an unknown correspondent.]

Sir, since you desire very much that I express freely my thoughts on Cartesianism, I shall not conceal aught of what I think of it, and which I can say in few words; and I shall advance nothing without giving or being able to give a reason for it. In the first place, all those who give themselves over absolutely to the opinions of any author are in a slavery and render themselves suspected of error, for to say that Descartes is the only author who is exempt from considerable error, is a proposition which could be true but is not likely to be so. In fact, such attachment belongs only to small minds who have not the force or the leisure to meditate themselves, or will not give themselves the trouble to do so. This is why the three illustrious academies of our times, the Royal Society of England, which was established first, and then the Academie Royale des Sciences, at Paris, and the Academia del Cimento, at Florence, have loudly protested that they wish to be known neither as Aristotelians, nor Cartesians, nor Epicureans, nor followers of any author whatever.

I have also recognized by experience that those who are wholly Cartesians are not adepts in inventing, they are but interpreters or commentators of their master, as the philosophers of the school were of Aristotle; and of the many beautiful discoveries which have been made since Descartes, I know of not one which comes from a true Cartesian. I know these gentlemen a little and I defy them to name one coming from them. This is an evidence that Descartes did not know the true method or that he has not transmitted it to them.

Descartes himself had a sufficiently limited mind. Of all men he excelled in speculations, but in them he found nothing useful

for life which is evident to the senses and which serves in the practice of the arts. All his meditations were either too abstract, like his metaphysics and his geometry, or too imaginary, like his principles of natural philosophy. The only thing of use which he believed he had given was his telescope, made according to the hyperbolic line, with which he promised to make us see animals, or parts as small as animals, in the moon. Unfortunately he was never able to find workmen capable of executing his design, and since then it has even been demonstrated that the advantage of the hyperbolic line is not so great as he believed. It is true that Descartes was a great genius and that the sciences are under great obligations to him, but not in the way the Cartesians believe. I must therefore enter a little into details and give examples of what he has taken from others, of what he has himself done, and of what he has left to be done. From this it will be seen whether I speak without knowledge of the subject. In the first place, his Ethics is a compound of the opinions of the Stoics and of the Epicureans, something not very difficult, for Seneca had already reconciled them very well. He wishes us to follow reason, or the nature of things as the Stoics said, with which everybody will agree. He adds that we ought not to be disturbed by the things which are not in our power. This is exactly the dogma of the Portico which established the greatness and liberty of their sage, so praised for the strength of mind which he had in resolving to do without the things which do not depend upon us and to endure them when they come in spite of us. It is for this reason that I am wont to call this ethics the art of patience. The Sovereign Good, according to the Stoics and according to Aristotle himself, was to act in accordance with virtue or prudence, and the pleasure resulting therefrom together with the resolution mentioned above is properly that tranquility of the soul, or indolence, which the Stoics and Epicureans sought and equally recommended under different names. One has only to examine the incomparable *Manual* of Epictetus and the *Epicurus* of Laertius to acknowledge that Descartes has not advanced the practice of morals. But it seems to me that this art of patience in which he makes the art of living consist, is yet not the whole. A patience without hope does not endure and does not console, and it is here that Plato, in my opinion, surpasses the others, for by good arguments he makes us

hope for a better life and approaches nearest to Christianity. It is sufficient to read the excellent dialogue on the *Immortality of the Soul or the Death of Socrates*, which Theophile has translated into French, to conceive a high idea of it. I think that Pythagoras did the same, and that his metempsychosis was merely to accommodate himself to the range of common people, but that among his disciples he reasoned quite differently. Also Ocellus Lucanus, who was one of them, and from whom we have a small but excellent fragment on the universe, says not a word of it. It will be said that Descartes establishes very well the EXISTENCE OF GOD and the immortality of the soul. But I fear that we are deceived by fine words, for the God, or Perfect Being, of Descartes is not a God such as we imagine him and such as we desire; that is to say, just and wise, doing everything for the good of creatures as far as is possible, but rather he is similar to the God of Spinoza, namely, the principle of things, and a certain sovereign power or primitive nature which sets everything in action and does everything which is feasible. The God of Descartes has neither *will nor understanding*, since according to Descartes he has not the *Good* as the object of the will nor the *True* as object of the understanding. Also he does not wish that his God should act according to some end, and for this reason he rejects from philosophy the search after final causes, under the adroit pretext that we are not capable of knowing the ends of God. Plato, on the contrary, has very well shown that God being the author of things and provided he acts according to wisdom, true physics is to know the ends and the uses of things, for science is the knowledge of reasons, and the reasons of what has been made by an understanding are the final causes or the designs of him who made them, and these appear from the use and the function which they have. This is why the consideration of the use of parts is so useful in anatomy. This is why a God such as that of Descartes leaves us no other consolation than that of patience *par force*. He says in some passages that matter passes successively through all possible forms; that is to say, that his God does everything which is feasible and passes, following a necessary and fated order, through all possible combinations; but for this the mere necessity of matter sufficed, or rather his God is nothing but this necessity, or this principle of necessity, acting in matter as it can. It must not, therefore, be believed that this God has any

more care of intelligent creatures than of the others. Each one will be happy or unhappy, according as it will find itself involved in great torrents or whirlpools; and he is right in recommending to us patience without hope (in place of felicity). But some one of the better class of Cartesians, deluded by the fine discourses of his master, will say to me that he nevertheless establishes very well the IMMORTALITY OF THE SOUL and consequently a better life. When I hear these things I am astonished at the ease with which the world is deceived, if one can merely play adroitly with agreeable words, although their meaning is corrupted; for just as hypocrites abuse piety, heretics the scriptures, and the seditious the word liberty, so the Cartesians have abused those grand words, the existence of God and the immortality of the soul. It is necessary, therefore, to unravel this mystery and to show them that the immortality of the soul, following Descartes, is worth no more than his God. I well believe that I shall not please some, for people do not enjoy being awakened when their minds are occupied with an agreeable dream. But what is to be done? Descartes teaches that false thoughts should be uprooted before true ones are introduced; his example ought to be followed, and I shall think that I am rendering a service to the public if I can disabuse them of such dangerous doctrines. I say then that the immortality of the soul, as it is established by Descartes, is of no use and can in no way console us. For grant that the soul is a substance and that no substance perishes; this being so the soul will not perish, but in reality also nothing perishes in nature. But like matter the soul too will change in form, and as the matter composing a man has at other times formed plants and other animals, so this soul may be immortal in reality but it will pass through a thousand changes and not remember at all what it has been. But this immortality without memory is altogether useless, viewed ethically, for it destroys all reward, all recompense, and all punishment. Of what use would it be to you, sir, to become king of China on condition of forgetting what you have been. Would it not be the same thing as if God at the same time that he destroyed you created a king in China? This is why, in order to satisfy the hope of the human race, it must be proved that the God who governs all is wise and just, and that he will leave nothing without recompense and without punishment. These are the great foundations of ethics; but the doctrine

of a God who does not act for the Good, and of a soul which is immortal without memory, serves only to deceive the simple and to pervert the spiritually minded.

I could, however, show mistakes in the pretended demonstration of Descartes, for there are still many things to be proved in order to complete it. But I think that at present it is useless to amuse one's self thus, since these demonstrations would be of almost no use, as I have just shown, even if they were good.

II.

Notes on Spinoza's *Ethics*.

[From the Latin.]

Part I.—Concerning God.

Definition 1. *Self-Caused* is that the essence of which involves existence.

Definition 2. That a thing is *finite*, which can be limited by another thing of the same kind, is obscure. For what is thought limited by thought? Or what other greater than it is given? He says that a body is limited because another greater than it can be conceived. Add to this what is said below, Prop. 8.

Definition 3. *Substance* is that which is in itself and is conceived through itself. This also is obscure. For what is it to be in itself? Then we must ask, Are to be in itself and to be conceived through itself conjoined cumulatively or disjunctively? That is, whether this means: Substance is that which is in itself, also substance is that which is conceived through itself; or, indeed, whether it means: Substance is that in which both these concur; namely, that it both is in itself and is conceived through itself. Or it will be necessary for him to demonstrate that what has the one, has also the other, when rather, on the contrary, it seems that there are some things which are in themselves although they are not conceived through themselves. And so men usually conceive substances. He adds: Substance is that, the conception of which does not require the conception of another thing. But there is also a difficulty in this, for in the following definition he says, An attribute is that which the intellect perceives of substance as constituting its essence. Therefore the concept of attribute is necessary for the formation of the concept of substance. If you say that the attribute is not the thing itself, but require indeed that substance shall not need the conception of another thing, I reply: You must explain what is called thing, that we may understand the definition and how the attribute is not the thing.

Definition 4. That an *attribute* is that which the intellect perceives of substance as constituting its essence, is also obscure. For

we ask whether by attribute he understands every reciprocal predicate; or every essential predicate whether reciprocal or not; or, finally, every first or undemonstrable essential predicate. *Vide* Definition 5.

Definition 5. A *mode* is that which is in another and is conceived through another. It seems, therefore, to differ from attribute in this, that attribute is indeed something in substance, yet is conceived through itself. And this explanation added, the obscurity of Definition 4, is removed.

Definition 6. *God*, he says, I define as a being absolutely infinite, or a substance consisting in infinite attributes, of which each expresses eternal and infinite essence. He ought to show that these two definitions are equivalents, otherwise he cannot substitute the one in place of the other. But they will be equivalents when he shall have shown that there are many attributes or predicates in the nature of things, which are conceived through themselves; likewise, when he shall have shown that many predicates can co-exist. Moreover, every definition (although it may be true and clear), is imperfect, which, although understood, allows of doubt as to the possibility of the thing defined. This, moreover, is such a definition, for thus far it may be doubted whether being does not imply having infinite attributes. Or for this reason, because it may be questioned whether the same simple essence can be expressed by many diverse attributes. There are, indeed, many definitions of compound things but only a single one of a simple thing, nor does it seem that its essence can be expressed except in a single way.

Definition 7. A *free* thing is that which exists and is determined to action by the necessity of its own nature; a *constrained* thing is that which is determined to existence and to action by another.

Definition 8. By *eternity* I understand existence itself so far as it is conceived to follow from the essence of a thing. These definitions [i. e., 7 and 8], I approve.

As to the Axioms, I note these things: The first is obscure as long as it is not established what *to be in itself* is. The second and seventh require no comment. The sixth seems incongruous, for every idea agrees with its ideate, nor do I see what a false idea can be. The third, fourth and fifth can, I think, be demonstrated.

Proposition 1. Substance is by nature prior to its modifications; that is, modes, for in Def. 5 he said that by modifications of substance he understands modes. Still he did not explain what *to be by nature prior* is, and thus this proposition cannot be demonstrated from what precedes. Moreover, *by nature prior to another* seems to mean that through which another is conceived. Besides I confess that there is some difficulty in this, for it seems that not only can posterior things be conceived through the prior, but also prior things through the posterior. Nevertheless, *prior by nature* may be defined in this way, as that which can be conceived without another thing being conceived; as also, on the other hand, the other, second thing, cannot be conceived except the first itself be conceived. But if I may say what the matter is, *prior by nature* is a little too broad; for example, the property of ten, that it is 6+4, is by nature posterior to this, that it is 6+3+1 (because the latter is nearer to the first of all: ten is 1+1+1+1+1+1+1+1+1+1) and nevertheless it can be conceived without this; nay, what is more, it can be demonstrated without it. I add another example: The property in a triangle, that the three internal angles are equal to two right angles is by nature posterior to this: that two internal angles are equal to the external angle of the third, and nevertheless the former can be conceived without the latter; nay, even, although not equally easily, it can be demonstrated without it.

Proposition 2. Two substances whose attributes are diverse have nothing in common. If by attributes he means predicates which are conceived through themselves, I concede the proposition, it being posited, however, that there are two substances, A and B, and that c is an attribute of substance A, d an attribute of substance B; or if c, e are all the attributes of substance A, likewise d, f are all the attributes of substance B. It is not so if these two substances have some diverse attributes, some common attributes, as if the attributes of A itself were c, d and of B itself were d, f. But if he denies that this can happen, the impossibility must be demonstrated. He will, perchance, in case of objection, demonstrate the proposition itself in this way: Because d and c equally express the same essence (since *ex hypothesi* they are attributes of the same substance, A), and for the same reason also d and f (since also *ex hypothesi* they are attributes of the same substance, B);

therefore c and f express the same essence. Whence it follows that A and B are the same substance, which is contrary to the hypothesis; therefore it is absurd to say that two diverse substances have anything in common. I reply, that I do not concede that there could be two attributes which can be conceived through themselves, and nevertheless express the same thing. For whenever this happens then these two attributes, expressing the same thing in a diverse way, can moreover be resolved, or at least one or the other of them. This I can easily demonstrate.

Proposition 3. Things which have nothing in common cannot be the one the cause of the other, by Axioms 5 and 4.

Proposition 4. Two or more distinct things are distinguished one from the other, either by the difference of the attributes of the substances or by the difference of their modifications. He demonstrates this thus: Everything which exists, exists either in itself or in something else, by Axiom 1; that is, by Defs. 3 and 5, nothing is granted in addition to the understanding, except substances and their modifications. [Here I am surprised that he forgets attributes for, Def. 5, by modification of substance he understands only modes; it follows, therefore, either that he spoke ambiguously, or that attributes are not numbered by him among the things existing outside of the understanding, but only substances and modes. Still he could have proved the proposition more easily if only he had added, that things which can be conceived through attributes or modifications are necessarily known and therefore distinguished.]

Proposition 5. There cannot be given in the nature of things two or more substances having the same nature or attribute.

[I note here what seems to be obscure in this, viz: in the nature of things. Does he mean, in the universe of existing things, or in the region of ideas or possible essences. Then it is not clear whether he wishes to say that many essences are not given having the same common attribute, or whether he wishes to say many individuals are not given having the same essence. I wonder indeed why he here employs the words *nature* and *attribute* as equivalents, unless he understands by attribute that which contains the whole nature. Which being posited, I do not see how there can be given many attributes of the same substance which may be conceived through themselves.] Demonstration: If they are distinguished, they are distinguished either by their modifications or

by their attributes; if by their modifications, then since substance is by nature prior to its modifications, by Prop. 1, their modifications being put aside, they must still be distinguished, therefore, by their attributes; if by their attributes, then two substances are not given possessing the same attribute. I reply that a paralogism seems to lurk here. For two substances can be distinguished by attributes, and yet have some common attribute, provided they also have in addition some which are peculiar. For example, A and B; the attribute of the one being $\overset{cd}{c\ d}$, of the other, $\overset{de}{d\ e}$. I remark that Prop. 1 is only useful for this. But it might have been omitted because it suffices that substance can be conceived without modifications whether it be by nature prior or not.

Proposition 6. One substance cannot be produced by another substance, for two substances, by Prop. 5, do not possess the same attribute, therefore they have nothing in common, by Prop. 2; therefore, it cannot be that one is the cause of the other, by Axiom 5. The same in other words and more briefly: Because what is conceived through itself cannot be conceived through another as cause, by Axiom 4. But I reply, that I grant the demonstration, if substance is understood as a thing which is conceived through itself; it is otherwise if it is understood as a thing which is in itself, as men commonly understand it, unless it be shown that it be in itself and to be conceived through itself are the same thing.

Proposition 7. Existence belongs to the nature of substance. Substance cannot be produced by anything else, Prop. 6. Therefore it is the cause of itself; that is, by Def. 1, its essence involves existence. He is not unjustly censured because sometimes he employs *cause of itself* as a definite something to which he ascribes a peculiar signification, Def. 1; sometimes he uses it in the common and vulgar meaning. Nevertheless, the remedy is easy, if he converts this Def. 1 into an Axiom and says: Whatever is not by another, is by itself or of its own essence. But here other difficulties still exist: the reasoning, namely, is valid only when it is posited that substance can exist. For it is then necessary that, since it cannot be produced by another, it exists by itself, and thus necessarily exist; but it must be demonstrated that it is a possible substance; that is, that it can be conceived. It seems that it can be demonstrated from the fact that if nothing can be conceived

through itself nothing also can be conceived through another, and hence nothing at all can be conceived. But that it may be shown distinctly, we must consider that if *a* is posited as conceived through *b*, there is in the conception of *a* itself the conception of *b* itself. And again, if *b* is conceived through *c*, there is in the conception of *b* the conception of *c* itself, and thus the conception of *c* itself will be in the conception of *a* itself, and so on to the last. But if any one reply that the last is not given, I answer, neither is the first, which I thus show. Because in the conception of that which is conceived through another there is nothing except what belongs to the other, so step by step through many there will either be nothing at all in it or nothing except what is conceived through it itself; which demonstration, I think, is wholly new but infallible. By this means we can demonstrate that what is conceived through itself can be conceived. But nevertheless, thus far it can be doubted whether it be possible in the way in which it is here assumed to be possible, certainly not for that which can be conceived, but for that of which some cause can be conceived, to be resolved into the first. For those things which can be conceived by us, nevertheless cannot therefore all be produced, on account of others which are preferable and with which they are incompatible. Therefore, being which is conceived through itself must be proved to be in actual existence by the additional evidence that because those things exist which are conceived through another, therefore that also through which they are conceived, exists. You see what very different reasoning is needed for accurately proving that a thing exists through itself. However, perhaps there is no need of this extreme caution.

Proposition 8. Every substance is necessarily infinite, since otherwise it would be limited by another of the same nature, by Def. 2, and two substances would be given with the same attribute, contrary to Prop. 5. This proposition must be understood thus: A thing which is conceived through itself is infinite in its own kind, and thus is to be admitted. But the demonstration labors not only with obscurity as respects this *is limited*, but also with uncertainty, by reason of Prop. 5. In the scholium he has excellent reasoning to prove that the thing which is conceived through itself is one, of course after its kind, since many individuals are posited as existing, therefore there ought to be a reason in nature why

there are so many, not more. The reason which accounts for there being so many accounts for this one and that one; hence also for this other one. But this reason is not found in one of these rather than in another. Therefore it is outside of all. One objection might be made, if it were said that the number of these is boundless or none, or that it exceeds every number. But it can be disposed of, if we assume only some of these and ask why these exist, or if we posit more having something in common, for example existing in the same place, why they exist in this place.

Proposition 9. The more reality or being a thing has the greater the number of its attributes. [He ought to have explained what is meant by reality or being, for these terms are liable to various significations.] Demonstration: It is clear from Def. 4. Thus the author. It seems to me not to be clear from it. For one thing may have more of reality than another, as what is itself greater in its own kind, or has a greater part of some attribute; for example, a circle has more extension than the inscribed square. And still it may be doubted whether there are many attributes of the same substance, in the way in which the author employs attributes. I confess, however, that if this be admitted and if it is posited that attributes are compatible, substance is more perfect according as it has more attributes.

Proposition 10. Each particular attribute of the one substance must be conceived through itself, by Defs. 4 and 3. But hence it follows, as I have several times urged, that there is but a single attribute of one substance, if it expresses the whole essence.

Proposition 11. God, or substance, consisting of infinite attributes, of which each expresses eternal and infinite essence, necessarily exists. He offers three demonstrations of this. *First*, because he is substance; therefore, by Prop. 7, he exists. But in this he supposes both that substance necessarily exists, which, up to Prop. 7, was not sufficiently demonstrated, and that God is a possible substance, which is not equally easy to demonstrate. *Second*. There must be a reason as well why a thing is as why it is not. But there can be no reason why God does not exist, not in his own nature for it does not involve a contradiction; not in another, for that other will either have the same nature and attribute, and hence will be God, or will not have them and hence will have nothing in common with God, and thus it can neither posit nor prevent his

existence. I reply, 1st, that it is not yet proved that the nature of God does not involve a contradiction, although the author says it is absurd to assert, without proof, that it does. 2d. There might be something having the same nature with God in some things, not in all. *Third.* Finite beings exist (by experience); therefore if the infinite does not exist there will be beings more powerful than the infinite being. It may be answered, if it implies anything, infinite being will have no power at all. I need say nothing of the impropriety of calling the potentiality of existence a power.

Propositions 12 and 13. No attribute of substance can be conceived, from which it would follow that substance can be divided; or substance taken absolutely is indivisible. For it will be destroyed by division and the parts will not be infinite and hence not substances. Many substances of the same nature would be given. I grant it of a thing existing through itself. Hence the *corollary* follows that no substance, and therefore no corporeal substance is divisible.

Proposition 14. Besides God, no substance can be granted or conceived. Because all attributes belong to God, nor are several substances having the same attribute given; therefore, no substance besides God is given. All these suppose the definition of substance, namely, being which is conceived through itself, and many others noted above which are not to be admitted. [It does not yet seem certain to me that bodies are substances. It is otherwise with minds.]

Corollary 1. God is one.

Corollary 2. Extension or thought are either attributes of God, or, by Axiom . . ., modifications of attributes of God. [This is speaking confusedly; besides he has not yet shown that extension and thought are attributes or conceived through themselves.]

Proposition 15. Whatever is, is in God, and without God nothing can be, or be conceived. For since there is no substance except God, Prop. 14, so all other things will be modifications of God, or modes, since besides substances and modes nothing is given. [Again he omits attributes.]

Proposition 16. From the necessity of the divine nature must follow an infinite number of things in infinite ways; that is, all things which can fall within the sphere of infinite intellect, by Def. 6.

Corollary 1. Hence it follows that God is the efficient cause of all things which fall under his intellect.

Corollary 2. God is a cause through himself, not indeed *per accidens*.

Corollary 3. God is the absolutely first cause.

Proposition 17. God acts solely by the laws of his own nature, and is not constrained by any one, since there is nothing outside of himself.

Corollary 1. Hence it follows, 1st, that there can be no cause which, either extrinsically or intrinsically, besides the perfection of his own nature, moves God to act.

Corollary 2. God only is a free cause.

In the Scholium he further explains that God created everything which is in his intellect (although, nevertheless, it seems that he has created only those which he wished). He says also that the intellect of God differs from our intellect in essence, and that, except equivocally, the name intellect cannot be attributed to both, just as the Dog, the heavenly constellation, and a dog, a barking animal, differ. The thing caused differs from its cause in that which it has from the cause. A man differs from man as respects the existence which he has from that man; he differs from God as respects the essence which he has from God.

Proposition 18. God is the immanent, not the transient cause of all things. From this it follows that God only is substance; other things are its modes.

Proposition 19. God, or all his attributes are eternal. For his essence involves existence, and his attributes involve his essence. In addition, the author cites and approves the way in which he demonstrated this in Prop. 19 of his "Principles of Descartes."

Proposition 20. The essence of God and his existence are one and the same thing. He proves all this from the fact that the attributes of God because eternal (by Prop. 19), express existence (by the definition of eternity). But they also express essence, by the definition of attribute. Therefore essence and existence are the same thing in God. I answer that this does not follow, but only that they are expressed by the same. I note, moreover, that this proposition supposes the preceding, but if in place of the preceding proposition its demonstration be employed in the demonstration of this, a senseless circumlocution will be apparent. Thus:

I prove that the essence and existence of God are one and the same thing, because the attributes of God express both existence and essence. They express essence by the definition of attribute, they express existence because they are eternal; they are, moreover, eternal because they involve existence, for they express the essence of God which involves existence. What need is there, therefore, of mentioning the eternity of the attributes and Prop. 19, when the point merely is to prove that the existence and essence of God are one and the same thing, since the essence of God involves existence. The rest is pompously introduced that it may be fashioned into a sort of demonstration. Reasonings of this sort are exceedingly common with those who do not possess the true art of demonstration.

Corollary 1. Hence it follows that God's existence, like his essence, is an eternal truth. I do not see how this proposition follows from the preceding; on the contrary, it is far truer and clearer than the preceding. For it is immediately apparent when it is posited that the essence of God involves existence, although it may not be admitted that they are one and the same.

Corollary 2. God and all his attributes are immutable. This the author proposes and proves obscurely and confusedly.

Proposition 21. All things which follow from the absolute nature of any attribute of God must always exist and be infinite; or, in other words, are eternal and infinite through the said attribute. He demonstrates this obscurely and quite at length, although it is easy.

Proposition 22. Whatsoever follows from any attribute of God, in so far as it is modified by a modification which exists necessarily and as infinite through the said attribute, must also exist necessarily and as infinite. He says the demonstration proceeds as in the preceding. Therefore, also obscurely. I could wish that he had given an example of such a modification.

Proposition 23. Every mode, which exists both necessarily and as infinite, must necessarily follow either from the absolute nature of some attribute of God, or from some attribute modified by a modification which exists necessarily, and as infinite. That is, such a mode follows from the absolute nature of some attribute either immediately or mediately through another such mode.

Proposition 24. The essence of things produced by God does not involve existence; otherwise, by Def. 1, they would be the cause of themselves, which is contrary to the hypothesis. This from elsewhere is manifest; but this demonstration is a paralogism. For *cause of itself*, by his Def. 1, has not retained its common meaning, but has received a peculiar one. Therefore the author cannot substitute the common meaning of the word for the peculiar one assumed by him at his will, unless he shows that they are equivalent. [Leibnitz has remarked on the margin of the manuscript: From this proposition it follows, contrary to Spinoza himself, that things are not necessary. For that is not necessary whose essence does not involve existence.—*Gerhardt.*]

Proposition 25. God is the efficient cause not only of the existence of things but also of their essence. Otherwise the essence of things could be conceived without God, by Axiom 4. But this proof is of no moment. For even if we concede that the essence of things cannot be conceived without God, from Prop. 15, it does not therefore follow that God is the cause of the essence of things. For the fourth axiom does not say this: *That without which a thing cannot be conceived is its cause* (which would indeed be false, for a circle cannot be conceived without a center, a line without a point, but the center is not the cause of the circle nor the point the cause of the line), but it says only this: *Knowledge of the effect involves knowledge of the cause*, which is quite different. For this axiom is not convertible; not to mention that *to involve* is one thing, *not able to be conceived without it* is another. Knowledge of a parabola involves in it knowledge of a focus, nevertheless it can be conceived without it.

Corollary. Individual things are nothing but modifications of the attributes of God, or modes by which the attributes of God are expressed in a fixed and definite manner. This, he says, is evident from Def. 5 and Prop. 15, but it does not appear in what way the corollary is connected with this Prop. 25. Certainly Spinoza is not a great master of demonstration. This corollary is sufficiently evident from what was said above; but it is true if it is understood in a right sense, not indeed that things are such modes, but modes of conceiving particular things are determinate modes of conceiving divine attributes.

Proposition 28. Every individual thing, or everything which is finite and has a conditioned existence, cannot exist or be conditioned to act, unless it be conditioned for existence and action by a cause other than itself, which also is finite, and has a conditioned existence; and likewise this by another, and so on *ad infinitum*. Because nothing conditioned, finite and existing in a certain time, can follow from the absolute essence of God. From this opinion strictly taken many absurd consequences follow. For indeed things will not follow in this way from the nature of God. For the conditioning thing itself is again conditioned by another, and so on *ad infinitum*. In no way, therefore, are things determined by God. God only contributes of himself certain absolute and general things. It would be more correct to say, that one particular thing is not determined by another in a progression *ad infinitum*, for otherwise, indeed, they always remain indeterminate, however far you progress; but rather all particular things are determined by God. Nor are posterior things the full cause of prior things, but rather God creates posterior things so that they are connected with the prior, according to rules of wisdom. If we say that prior things are the efficient causes of the posterior, the posterior will in turn be in a way the final causes of the prior, according to the view of those who claim that God operates according to ends.

Proposition 29. Nothing in the nature of things is contingent, but all things are conditioned to exist and operate in a particular manner by the necessity of the divine nature. The demonstration is obscure and abrupt, deduced from preceding propositions abrupt, obscure and doubtful. It depends upon the definition of *contingent*, which he has nowhere given. I, with others, employ contingent for that the essence of which does not involve existence. In this meaning, particular things are contingent, according to Spinoza himself, by Prop. 24. But if you employ contingent according to the custom of certain scholastics, a custom unknown to Aristotle and to other men and to the usage of life, for that which *happens*, so that a reason can in no way be given why it should occur thus rather than otherwise; the cause of which also, all the requisites as well within as without it having been posited, was equally disposed toward acting or not acting; I think that such a contingent implies that all things are by their nature, according to the hypothesis of the divine nature and the condition of things,

certain and determinate, although unknown to us, and do not have their determination in themselves but through the supposition or hypothesis of things external to them.

Proposition 30. Intellect, in action (*actu*) finite, or in action infinite, must comprehend the attributes of God and the modifications of God, and nothing else. This proposition, which is sufficiently clear from the preceding and in a right sense true, our author according to his custom proves by others which are obscure, doubtful and remote; namely, that a true idea must agree with its ideate, that is, as known *per se* (so he says, although I do not see how what is known *per se* is any the more true); that what is contained in the intellect objectively must necessarily be granted in nature; that but one substance is given, namely, God. Nevertheless, these propositions are obscure, doubtful and far-fetched. The genius of the author seems to have been greatly distorted. He rarely proceeds by a clear and natural road; he always goes by an abrupt and circuitous one. And most of his demonstrations rather surprise (*surprennent*) the mind than enlighten it.

Proposition 31. The intellect in action, whether finite or infinite, as will, desire, love, etc., should be referred to passive nature (*natura naturata*), not to active nature (*natura naturans*). He understands by active nature, God and his absolute attributes; by passive nature, his modes. But the intellect is nothing else than a certain mode of thought. Hence elsewhere he says that God properly does not know or will. I do not assent to this.

Proposition 32. Will cannot be called a free cause, but only a necessary cause, because, forsooth, that is free which is determined by itself. The will, moreover, is a mode of thought and so is modified by another.

Proposition 33. Things could have been produced by God in no other manner or order than that in which they have been produced. For they follow from the immutable nature of God. This proposition is true or false according as it is explained. On the hypothesis of a divine will choosing the best or operating most perfectly, certainly nothing but these could have been produced; but according to the nature of things regarded in themselves, things might have been produced otherwise. Just as we say that the angels confirmed [in holiness] cannot sin, in spite of their liberty; they can if they will but they do not will. They may be able,

absolutely speaking, to will it, but in this existing state of affairs they are not able to will it. The author rightly acknowledges in the scholium that a thing is rendered impossible in two ways, either because it implies it in itself or because no external cause is given suitable for producing it. In the second scholium he denies that God does all things with the Good in view (*sub ratione boni*). He certainly has denied to him will, and he thinks that those differing from him subject God to fate, although nevertheless he himself confesses that God does all things by reason of the Perfect (*sub ratione perfecti*).

Proposition 34. God's power is his very essence, because it follows from the nature of essence that he is the cause of himself and of other things.

Proposition 35. Whatever exists in the power of God exists necessarily; that is, follows from his essence.

Proposition 36. Nothing exists from whose nature some effect does not follow, because it expresses the nature of God in a certain and determined mode; that is, by Prop. 34, the power of God [it does not follow, but it is nevertheless true].

He adds an Appendix against those who think that God acts with an end in view, mingling true with false. For although it may be true that all things do not happen for the sake of man, nevertheless it does not follow that God acts without will or without knowledge of good.

In the copy of Spinoza's *Opera Posthuma*, now contained in the royal library at Hanover, Leibnitz has written the following notes:

Part Second of the "Ethics."

On Def. 4, "By an *adequate idea*, I mean an idea which, in so far as it is considered in itself, without relation to the object has all the properties or intrinsic marks of a true idea," Leibnitz writes: He had therefore to explain what a true idea is, for Part I, Axiom 1, it is employed only as agreement with its ideate.

At the end of the Proof of Prop. 1, "Thought is an attribute of God or God is a thinking thing," Leibnitz adds: In the same way he will prove that God fears and hopes. If you reply that they are modes of thought, it can perhaps be said that thought is a mode of another attribute.

On Prop. 6, "The modes of any given attribute are caused by God, in so far as he is considered through the attribute of which they are modes, and not in so far as he is considered through any other attribute." Leibnitz remarks: I doubt it, because it seems that something besides is required for modifying any attribute. The reason is the same with that which concludes that not all exist; on the contrary, that certain distinct ones exist.

On Prop. 12, "Whatever comes to pass in the object of the idea, which constitutes the human mind, must be perceived by the human mind, or there will necessarily be an idea in the human mind of this occurrence. That is, if the object of the idea constituting the human mind be a body, nothing can take place in that body without being perceived by the mind," is written: Ideas do not act. The mind acts. The whole world is indeed the object of each mind. The whole world in a certain way is perceived by any mind whatever. The world is one, and nevertheless minds are diverse. Therefore the mind is made not through the idea of the body, but because God in various ways intuites the world as I do a city.

To Prop. 13, "The object of the idea constituting the human mind is the body; in other words, a certain mode of extension which actually exists, and nothing else," Leibnitz adds: Hence it follows that some mind is momentarily, at least, in the same man.

At the end of the Proof to Prop. 15, "The idea which constitutes the actual being of the human mind, is not simple, but compounded of a great number of ideas," he remarks: Therefore, also, the human mind is an aggregate of many minds.

On Prop. 20, "The idea or knowledge of the human mind, is also in God, following in God in the same manner, and being referred to God in the same manner, as the idea or knowledge of the human body," he writes: Therefore the idea of the idea is given. Hence it would follow that the thing would go on *in infinitum*, if indeed the human mind is an idea.

On the words of the Scholium to Prop. 21, "That is, mind and body are one and the same individual, conceived now under the attribute of thought, now under the attribute of extension," he remarks: Therefore, in fact, mind and body do not differ any more than a city regarded in different ways differs from itself. It follows that extension does not in fact differ from thought, ἄτοπα.

At the end of this scholium Leibnitz adds: Hence it follows that to understand the idea of the body, or the mind, there is no need of another idea.

On Prop. 23, "The mind does not know itself, except in so far as it perceives the ideas of the modifications of the body," he writes: If the mind perceives itself in any way whatsoever, it follows that there is no idea of the mind in God, other than from the mind itself, for it perceives itself in so far as it expresses God perceiving the mind.

On the words in the proof of this proposition, "The human mind does not know the human body itself," he remarks: On the contrary, just as God or the mind knows the body through the ideas of the modifications of the body, so they know the mind through the ideas of the modifications of the mind.

Part Third of the "Ethics."

On Def. 3, "By *emotion* I mean the modifications of the body by which the active power of the body itself is increased or diminished, aided or constrained, and also the ideas of these modifications," he remarks: Emotion is understood also when we do not think of the body.

To Prop. 23, "When we love a thing similar to ourselves we endeavor, as far as we can, to bring about that it should love us in return," he writes: The reason why we endeavor to do good to it is to bring about that we may be loved. But this can and ought to be proved otherwise, for any one can will to do good although he does not seek and think to be loved in return.

On Def. 2 of the Emotions, "Joy is the transition of a man from less to greater perfection," he remarks: I can increase the perfection of the body, so that I am not aware that I am becoming more beautiful and that my limbs are growing to greater strength. It may be replied that this transition is insensible, and so also is the joy.

On Parts IV and V of the *Ethics* no remarks are found.

III.

Thoughts on Knowledge, Truth and Ideas.

[From the Latin. Acta Eruditorum Lipsiensium, Nov., 1684.]

Since eminent men are to-day raising discussions concerning true and false ideas, and since this subject, which even Descartes has not always satisfactorily explained, is of the greatest importance for the knowledge of truth, I propose to explain in a few words, what, in my opinion, may be said with certainty regarding the distinctions and the criteria of our ideas and of our knowledge. Thus knowledge is either *obscure* or *clear*, and clear knowledge is farther either *confused* or *distinct*, and distinct knowledge is either *inadequate* or *adequate*, or again, symbolical or intuitive; and if it is at the same time *symbolical* and *intuitive*, it is perfect in every respect.

A notion is *obscure* when it is not sufficient to enable us to recognize the thing represented; as for example, where I should have some *vague* idea of a flower or of an animal which I should have already seen but not sufficiently to be able to recognize it if offered to my sight, nor to *distinguish* it from some neighboring animal; or where I should consider some term badly defined in the schools, such as the *entelechy* of Aristotle, or *cause* in so far as it is common to matter, to form, to efficient cause, or to end, and other expressions of which we have no fixed definition; this renders the proposition of which such a notion forms part equally obscure. Knowledge then is *clear* when it is sufficient to enable me to recognize the thing represented, and it is farther either *confused* or *distinct; confused*, when I cannot enumerate separately the *marks* necessary to distinguish one thing from others, notwithstanding that the object has in reality such marks, as well as data requisite to the analysis of the notion. It is thus that we recognize clearly enough, colors, odors, flavors and other particular objects of the senses, and that we distinguish the one from the other by the simple testimony of the senses and not by enunciable signs. This is why we cannot explain to a blind person what red is, nor can we make other people recognize qualities of this

kind except by placing them in direct communication with them, that is, by making them see, smell and taste, or at least by recalling to them a certain sensation which they have already experienced; and nevertheless it is certain that the notions of these qualities are composite and may be analyzed, because they have their causes. Just so we often see painters or other artists who judge very correctly that a work is good or defective, without being able to account for their judgment, and who reply to those who ask their opinion, that that of which they disapprove, lacks somethings, *I know not what.* But a *distinct* notion resembles that which the assayers have of gold, by the aid of distinctive signs and of means of comparison sufficient to distinguish the object from all other similar bodies. Such are the means of which we make use for notions common to several senses, such as those of number, of magnitude and of figure, as well as for many affections of the mind, such as hope and fear: in a word, for all the objects of which we have a *nominal definition*, which is nothing else than an enumeration of sufficient distinctive marks. We have however a distinct knowledge of an indefinable thing when it is primitive, or when it is only the mark of itself—that is, when it is irreducible and is only understood through itself, and consequently does not possess the requisite marks. As for composite notions where each of the component marks is sometimes clearly known, although in a confused way, as gravity, color, aqua fortis, which form a part of those [the marks] of gold, it follows that such a knowledge of gold is distinct without always being *adequate.* But when all the elements of a distinct notion are themselves also known distinctly, or when its analysis is complete, the idea is *adequate.* I do not know that men can give a perfect example of this, although the knowledge of numbers approaches it very nearly. It very often happens, nevertheless, especially in a long analysis, that we do not perceive the whole nature of the object at one time, but substitute in place of the things, signs, the explanation of which, in any present thought, we are accustomed for the sake of abbreviation to omit, knowing or believing that we can give it; thus when I think a chiliogon, or polygon with a thousand equal sides, I do not always consider the nature of a side, of equality, and of the number thousand (or of the cube of ten); but these words, the sense of which presents itself to my mind in an obscure, or at least

imperfect manner, take the place to me of the ideas which I have of them, because my memory attests to me that I know the signification of these words, and that their explanation is not now necessary for any judgment. I am accustomed to call this thought *blind* or again *symbolical;* and we make use of it in algebra, in arithmetic and almost everywhere. And assuredly when a question is very complex, we cannot embrace in thought at the same time all the elementary notions which compose it; but when this can be done, or at least as far as this can be done, I call this thought *intuitive.* We can only have an intuitive knowledge of a distinct, primitive notion, as most often we have only a symbolical knowledge of composite ideas.

From this it clearly follows that even of the things which we know distinctly, we only conceive the ideas in as far as they form the object of intuitive thought. Also it often happens that we imagine that we have in our minds the ideas of things, from supposing wrongly that we have already explained to ourselves the terms of which we make use. And it is not true, as some say, or at least it is very uncertain, that we cannot speak of anything, understanding fully what we say, without having an idea of it. For often we vaguely understand each of these terms or we remember that we have formerly understood them; but as we content ourselves with this blind thought and as we do not push far enough the analysis of notions, it happens that unwittingly we fall into the contradiction which the composite idea may imply. I have been led to examine this question more closely by an argument, long celebrated in the schools and renewed by Descartes, for proving the existence of God. It is as follows: All that follows from the idea or from the definition of a thing may be affirmed of the thing itself. From the idea of God (or the most perfect being, or one a greater than whom cannot be conceived), existence follows. (For the most perfect being involves all perfections, among which is also existence). Therefore existence may be affirmed of God. But it must be known how it comes about that if God be *possible*, it follows that he *exists.* For to conclude, we cannot safely use definitions before knowing whether they are real and do not involve any contradiction. The reason of this is, that if the ideas involve contradiction, opposite things may be concluded at the same time, which is absurd. I am accustomed, in order to render

this truth clear, to make use of the example of quickest motion, which involves an absurdity. Suppose then that a wheel turn with the quickest motion, who does not see that a spoke prolonged will move more rapidly at its extremity than at the center of the circumference; therefore the motion is not the quickest, which is contrary to the hypothesis. However it seems at first view, as if we might have an idea of quickest motion, for we understand fully what we say, and yet we cannot have an idea of impossible things. So it does not suffice that we think the most perfect being, to assure us that we have the idea of such a being, and in the demonstration which we have just produced, the possibility of the most perfect being must be shown or supposed, if the conclusion be legitimately drawn. However it is very true both that we have an idea of God, and that the most perfect being is *possible*, and even *necessary;* but the argument is not conclusive and has already been rejected by Thomas Aquinas.

And it is thus that we find a difference between *nominal* definitions, which only contain the marks of the thing which is to be distinguished from others, and *real* definitions which show clearly that the thing is possible. And in this way answer is made to Hobbes, who pretended that truths were arbitrary, because they depended on nominal definitions, not considering that the reality of the definition is independent of arbitrariness, and that notions are not always reconcilable among themselves. Nominal definitions are only sufficient to a perfect science when it is well established otherwise that the thing defined is possible. It is very evident also what a true idea is, what a false; the idea is true when the notion is possible; it is false when the notion involves contradiction. Now we know the *possibility* of a thing either a priori or a posteriori. A priori, when we resolve the notion into its elements, or into other notions of known possibility, and when we know that it includes nothing which is incompatible; and, to cite but one case, this takes place when we understand by what means a thing may be produced, a fact which makes *causal definitions* more useful than any others: a posteriori, when experience shows us the thing actually existing; for that which exists in fact is necessarily possible. Every time that we have an adequate knowledge, we have also knowledge of the possibility a priori; for if we push the analysis to the end and no contradiction appears, the notion is

necessarily possible. Now, is it possible that men should ever construct a perfect analysis of notions, or that they should reduce their thoughts down to *first possibilities*, to irreducible notions, or what is the same thing, down to the absolute attributes of God; that is, to the first causes and to the final reason of things? I should not dare to actually decide this question. Most often we content ourselves with learning from experience the reality of certain notions, from which afterwards we compose others, after the example of nature.

Whence I think it may be understood that it is not always safe to appeal to ideas, and that many abuse this specious title for establishing certain imaginations of their own. For we have not always immediately the idea of the thing of which we are conscious of thinking, as we have shown above in the example of greatest swiftness. And I see that none the less to-day do men abuse this famous principle: *Everything that I conceive clearly and distinctly of a thing is true or may be predicated of it.* For often men, judging hastily, imagine things clear and distinct which are obscure and confused. The axiom is therefore useless unless the *criteria* of clearness and distinctness, which we have indicated be applied, and the truth of the ideas be well established. As for the rest, it is not necessary in the exposition of truth to reject as criteria the rules of ordinary logic of which geometricians make use and which consist in admitting nothing as certain which is not proved by exact experience or solid demonstration. Now a solid demonstration is one which observes the form prescribed by logic, without, however, always having need of syllogisms disposed in the regular order of the schools (like those of which Christianus Herlinus and Conradus Dasypodius made use for the demonstration of the first six books of Euclid); but at least in such a way that the reasoning is conclusive by virtue of its form—an example of such reasoning conceived in the regular form may be found in any legitimate calculus. Thus no necessary premise will be omitted, and all the previous premises must be either proved or at least admitted as hypotheses, in which case the conclusion is hypothetical. Those who will carefully observe these rules will easily guard themselves from deceptive ideas. It is in accordance with such principles that the great genius, Pascal, in an excellent dissertation on the *Mathematical Genius* (a fragment of which exists in the remarkable book of

the celebrated Antoine Arnauld, *On the Art of Thinking Well*), says that the geometrician must define all terms in the least obscure and prove all truths in the least doubtful. But I wish he had defined the limits beyond which a notion or an affirmation is no longer in the least obscure or doubtful. However, we may judge what there is in it by an attentive examination of the considerations which we have just mentioned, for now I wish to be brief.

As to the question *whether we see all things in God* (an old opinion, too, which reasonably understood ought not to be altogether rejected), or whether we have ideas of our own, it must be understood that even if we see all things in God it is none the less necessary that we have also ideas of our own ; that is, not as it were certain little images, but affections or modifications of our mind, answering to that which we perceive in God. For since our thoughts are constantly being succeeded by others, a certain change is wrought in our mind ; as for the things not actually conceived by us, ideas of them are in our mind as the statue of Hercules in the rough marble. But with God, on the contrary, must necessarily exist in actuality the idea not only of absolute and infinite extension, but also of each figure, which is nothing else than the modification of absolute extension. Moreover, when we perceive colors and odors we have no other perception but that of figures and motions, but so multiplex and delicate that our mind, in its present state, is incapable of distinctly considering each one and consequently it does not notice that the perception is only composed of extremely small figures and motions. So when, after having mixed yellow powder with blue we perceive a green color, we do not perceive anything but the yellow and blue minutely mixed, although we do not notice it, or rather imagine that we perceive some new entity.

IV.

Extract from a Letter to Bayle, Concerning a General Principle useful in the Explanation of the Laws of Nature. 1687.

[From the French.]

I have seen the reply of Malebranche to the remark which I made concerning certain laws of nature which he had established in the *Search after Truth*. He seems sufficiently disposed to abandon them himself, and this ingenuousness is highly praiseworthy; but as he gives reasons and restrictions, which would land us in the obscurity from which I think I have relieved this subject, and which clash with a certain *principle of general order* which I have observed, I hope that he will have the kindness to permit me to avail myself of the present opportunity to explain this principle, which is of great use in reasoning and which I think is not yet sufficiently employed nor sufficiently known in all its bearing. It takes its origin from the *infinite;* it is absolutely necessary in geometry but it holds good also in physics, for this reason that the sovereign wisdom which is the source of all things acts as a perfect geometrician, and according to a harmony to which nothing can be added. This is why this principle often serves as proof or test to show at first sight and from without, the error of a badly constructed opinion, even before coming to the discussion of the matter itself. It may be stated thus: When the difference of two cases may be diminished below any magnitude given *in datis* or in that which is posited, it must also be found diminished below any magnitude given *in quaesitis* or in that which results therefrom. Or to express it more familiarly, when the cases (or that which is given), continually approach each other and finally lose themselves one in the other, the results or events (or that which is required), must also do the same. This depends again on a more general principle, to wit: *datis ordinatis etiam quaesita sunt ordinata.* But in order to understand it examples are necessary.

It is known that the case or the supposition of an illipse may approach the case of a parabola as much as may be, so that

the difference of the illipse and of the parabola may become less than any given difference, provided that one of the foci of the illipse be sufficiently distant from the other, for then the radii coming from this distant focus will differ from the parallel radii as little as may be, and consequently all the geometrical theorems which are true of the illipse in general can be applied to the parabola by considering the latter as an illipse, one of the foci of which is infinitely distant, or (to avoid this expression), as a figure which differs from some illipse less than any given difference. The same principle holds good in physics; for example, rest may be considered as an infinitely small velocity, or as an infinite slowness. This is why all that is true in respect to slowness or velocity in general, must be true also of rest thus understood; so much so that the rule of rest ought to be considered as a particular case of the rule of motion; otherwise, if this does not hold, it will be a sure sign that the rules are badly contrived. So equality may be considered as an infinitely small inequality, and inequality may be made to approach equality as much as you please.

It is among other faults of this consideration that Descartes, very able man as he was, failed in more than one way in his pretended laws of nature. For (not to repeat here what I said before of the other source of his error, when he took the quantity of movement for force), his first and his second rules, for example, do not agree; the second says that two bodies, B and C, meeting in the same line with equal velocities, and B being as little as possible larger, C will be turned back with its first velocity, but B will continue its movement; whereas according to the first rule, B and C being equal, both will turn back and retrograde with a velocity equal to that which had carried them thither. But the difference in the results of these two cases is not reasonable; for the inequality of the two bodies may be as slight as you please, and the difference which is in the suppositions of these two cases, to wit: the difference between such an inequality and a perfect equality could be less than any given; hence, by virtue of our principle, the difference between the results or outcomes ought also to be less than any given; notwithstanding if the second rule were as true as the first the contrary would happen, for according to this second rule any increase, however small, of body B before equal to C, makes a difference *grandissime* in the effect, such that it changes absolute

retrogression into absolute continuation, which is a great leap from one extremity to the other, whereas in this case body B ought to turn back a little less, and body C a little more than in the case of equality, from which this case can hardly be distinguished.

There are many other like incongruities resulting from the Cartesian rules, which the attention of a reader applying our principle will easily remark, and the like case which I had found in the rules of the *Search after Truth* came from the same source. Malebranche in a way avows that there are inconsistencies, but he does not cease to believe that the laws of movement depending on the good pleasure of God, are regulated by his wisdom, and the geometricians would be also almost as much surprised to see these kinds of irregularities coming into nature as to see a parabola to which might be applied the properties of an illipse with an infinitely distant focus. Also such inconsistencies will never be encountered in nature, I think. The better it is known the more it is found to be geometrical. It is easy to judge from this that these inconsistencies do not properly come from that which Malebranche asserts they do, to wit: from the false hypothesis of the perfect hardness of bodies, which I admit is not found in nature. For even if we should suppose in it this hardness, regarding it as infinitely quick elasticity, there would result from it nothing which could not be adjusted perfectly to the true laws of nature as regards elastic bodies in general, and never shall we encounter rules so little connected as these in which I have found something to censure. It is true that in composite things sometimes a little change may produce a great effect; as for example, a spark falling into a great mass of gunpowder is capable of overturning a whole city; but this is not contrary to our principle, and these cases may be accounted for by even general principles, but as respects elements or simple things, nothing similar could happen, otherwise nature would not be the effect of infinite wisdom.

Whence it is seen (a little better than in what is commonly said of it), how true physics must be derived really from the source of the divine perfections. It is God who is the final reason of things and the knowledge of God is no less the principle of the sciences than his essence and his will are the principles of beings. The most reasonable philosophers agree in this, but there are very few of them who can make use of it to discover truths of importance.

Perhaps these little attempts will arouse some to go much farther. It is sanctifying philosophy to make its streams flow from the fountain of the attributes of God. Far from excluding *final causes* and the consideration of a being acting with wisdom, it is from thence that all must be derived in physics. This it is which Socrates in the *Phaedo* of Plato has already admirably remarked, when reasoning against Anaxagoras and other material philosophers who, after having at first recognized an intelligent principle above matter, do not employ it at all when they come to philosophize on the universe, and instead of showing that this intelligence does everything for the best, and that this is the reason of the things which it has found good to produce conformably to its ends, try to explain everything by the mere concourse of senseless particles, confounding the conditions and instruments with the true cause. It is (said Socrates), as if in order to explain why I am seated in prison awaiting the fatal stroke and am not on the way to the Bœotians or other peoples, whither, it is known, I might have escaped, it should be said that it is because I have bones, tendons and muscles which can be bent as is necessary in order to be seated. My faith (he says), these bones and these muscles would not be here, and you would not see me in this posture if my mind had not judged that it is more worthy of Socrates to suffer what the laws of the country ordain. This passage in Plato deserves to be read entire, for these are very beautiful and solid reflections. Nevertheless I admit that particular effects of nature may and must be explained mechanically, without forgetting, however, their admirable designs and uses which Providence has known how to take care of, but the general principles of physics and even of mechanics themselves depend on the direction of a sovereign intelligence, and cannot be explained without taking it into consideration. Thus it is that piety must be reconciled with reason, and that good people may be satisfied who fear the results of the mechanical or corpuscular philosophy, as if it would lead us from God and immaterial substances, whereas with the required corrections and everything well understood, it ought to lead us to him.

V.

Letter from Leibnitz to Arnauld in which he states his Personal Views on Metaphysics and Physics. 1690.

[From the French.]

Sir—I am now on the point of returning home after a long journey, undertaken at the order of my prince for the purpose of historical researches, in which I found certificates, titles and indubitable proofs sufficient to justify the common origin of the illustrious houses of Brunswick and Este, which Messrs. Justel, du Cange and others had good reasons for calling in question, because there were contradictions and falsities in the historians of Este in this respect, together with an utter confusion of times and persons. At present I think of returning and resuming my former course of life, and having written to you two years ago shortly before my departure, I take the same liberty to-day, to inform myself of your health, and to make known to you how the idea of your eminent merit is always present in my mind. When I was at Rome I saw the denunciation of a new heresy attributed to you, or to your friends, and afterwards I saw the letter of reverend Father Mabillon to one of my friends, in which there was the statement that the defense by the reverend Father Le Tellier of the missionaries against the practical morals of the Jesuits, had given to many people impressions favorable to these Fathers, but that he had heard that you had replied to it and that it was said that you had overthrown by geometrical reasoning the arguments of that Father. All of which leads me to think that you are still in condition to render service to the public, and I pray God that it may be so for a long time to come. It is true that this is to my interest, but it is a praiseworthy interest which may give me the means of learning, whether it be in common with all others who shall read your works, or personally, when your judgments shall instruct me—if the little leisure you have may permit me again to hope sometimes for that advantage.

As this voyage has in part served to relieve my mind from its ordinary occupations, I have had the satisfaction of conversing on

matters of science and erudition with several able men, and I have communicated my personal views, which you know, to some in order to profit by their doubts and difficulties; and there have been some who, not satisfied with the common doctrines, have found an extraordinary satisfaction in some of my views. This has led me to write them down that they may be the more easily communicated, and perhaps I shall cause some copies to be printed some day without my name, merely to send them to my friends in order that I may have their judgment on them. I would like you to be able to examine them first, and for that reason I have made the following abstract:

Body is an aggregate of substances, and not properly speaking one substance. It must be, consequently, that everywhere in body there are found indivisible substances, ingenerable and incorruptible, having something corresponding to souls. That all these substances have always been and always will be united to organic bodies differently transformable. That each of these substances contains in its nature *legem continuationis seriei suarum operationum* and all that has happened or will happen to it. That all its actions come from its own depths, except dependence on God. That each substance expresses the entire universe, but one more distinctly than an other, especially each as regards certain things and according to its own point of view. That the union of soul with body, and the operation also of one substance or another consists merely in that perfect mutual accord, expressly established by order of the first creation, in virtue of which each substance following its own laws agrees in what the others demand; and the operations of the one follow or accompany thus the operation or change of the other. That intelligences or souls capable of reflection and of the knowledge of eternal truths and of God, have many privileges which exempt them from the vicissitudes of bodies. That for them moral laws must be added to physical. That all things are made principally for them. That they form together the republic of the universe, of which God is the monarch. That there is a perfect justice and police observed in this city of God, and that there is no wrong action without chastisement, nor good action without proportioned recompense. That the more we come to know things, the more we will find them beautiful and conformed to that which a sage would desire. That we should always be content with the

order of the past, because it is conformed to the absolute will of God which is known by the event; but that we must try to render the future as far as it depends on us, conformable to the presumptive will of God or to his commandments; to beautify our Sparta and to labor to do good, without being depressed, however, when success fails, and this in the firm belief that God can discover the times most suited for changes for the better. That those who are not satisfied with the order of things cannot boast of loving God as he should be loved. That justice is but the love of the sage. That love is a universal benevolence which the sage fulfils conformably to the measure of reason, to the end of obtaining lasting contentment, which consists in a continual advance to greater perfection, or at least in the variation of a like degree of perfection.

As regards physics, it is necessary to understand the nature of force, a thing entirely different from motion, which is something more relative. That this force is to be measured by the quantity of effect. That there is an absolute force, a directive force and a respective force. That each of these forces continues in the same degree in the universe, or in each machine not in communication with others, and that the two latter forces, taken together, compose the first or absolute. But that the same quantity of movement is not preserved, since I show that otherwise the perpetual movement would be all found, and that the effect would be more powerful than its cause.

It is now some time ago that I published in the Leipsic *Acta* an essay on physics, to find the physical cause of the movements of the stars. I lay down as basis that all movement of a solid in a liquid, taking place in a curved line or the velocity of which is continually changing, comes from the movement of the liquid itself; whence I draw the inference that the stars have conforming but fluid orbits. I have demonstrated an important general proposition, viz: that every body that moves with a circulation which is harmonious (i. e., such that the distances from the center being in arithmetical progression the velocities are in harmonious progression, or reciprocal to the distances), and which furthermore has a paracentric movement, that is, of gravity or of levity as regards the same center (a certain law which this attraction or repulsion keeps), the said body has the areas necessarily as the times, just as Kepler observed among the planets. Then con-

sidering *ex observationibus*, that this movement is elliptic, I find that the laws of paracentric motion, which motion joined to harmonious circulation describes ellipses, must be such that the gravitations are reciprocally as the squares of the distances; i. e., as the illuminations *ex sole*.

I shall say nothing to you of my calculus of increments or differences, by which I determine the tangents, without eliminating the irrational quantities and fractions even when the unknown quantity is involved in them, and I subject quadratics and the transcendent problems to analysis. And I will not speak either of an entirely new analysis which belongs to geometry and is entirely different from algebra; and still less of some other things on which I have not yet had time to prepare essays. All of which I should like to be able to explain to you in few words, in order to have your opinion, which would be of greatest use to me, on them; if you had as much leisure as I have deference for your judgment. But your time is too precious, and my letter is already sufficiently long. Therefore I close here, and am, sir,

Your obedient and humble servant,

LEIBNITZ.

Venice, March 23, 1690.

VI.

Letter on the Question, Whether the Essence of Body Consists in Extension. 1691.

[From the French.]

You ask, sir, the reasons which I have for believing that the idea of body or of matter is other than that of extension. It is true, as you say, that many able men are to-day of the opinion that the essence of body consists in length, breadth and depth. Nevertheless there are still others who cannot be accused of too much attachment to scholasticism, who are not content with this opinion.

M. Nicole, in a certain place in his *Essais*, states that he is of this number and it seems to him that there is more of bias than of insight in those who do not appear repelled by the difficulties which are therein encountered.

It would require a very full discourse to explain clearly what I think on the subject. However, here are some considerations which I submit to your judgment, and I beg you to make it known to me.

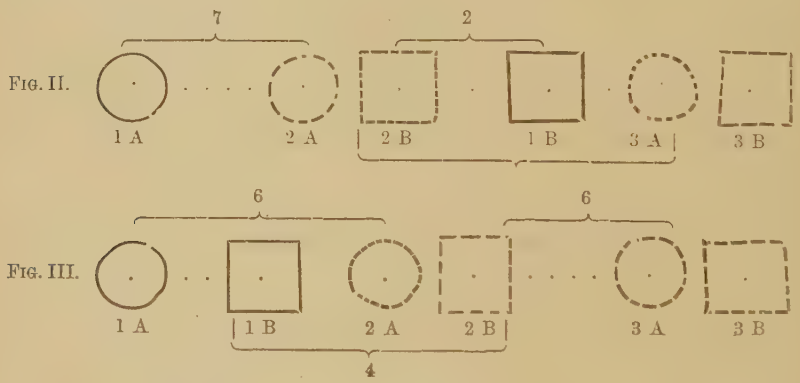
If the essence of body consisted in extension, this extension alone ought to be sufficient to account for all the properties of body. But this is not so. We notice in matter a quality, called by some *natural inertia*, by which body resists movement in a certain way; so that it is necessary to employ some force to set it in motion (even making abstraction of the weight), and a large body is moved with more difficulty than a small body. For example:

Fig. I.

if body A, in motion, encounters body B, at rest, it is evident that if body B were indifferent to motion or to rest, it would allow itself to be pushed by body A without resisting it, and without decreasing the velocity or changing the direction of body A; and after their meeting A would continue its path and B would go in company with it, preceding it. But it is not thus in nature. The

larger body B is, the more it will decrease the velocity with which body A moves, even to compelling it to retrograde if B is much larger than A. Now *if there were nothing in bodies but extension*, or situation, that is, that which geometricians recognize in them, joined to the one notion of change; this extension would be entirely indifferent respecting this change, and the results of the meeting of bodies would be explained by the mere geometrical composition of movements; that is to say, the body after the meeting would advance with a movement composed of the impression which it had before the shock and of that which it received from the concurrent, in order not to hinder it; that is, in this case of meeting it would go with the difference of the two velocities and from the side of the direction.

As the velocity of 2 A 3 A, or 2 B 3 B, in figure II, is the difference between 1 A 2 A and 1 B 2 B; and in the *case of contact*, figure III, when the



quickest should touch a slower one which precedes it, the slower would receive the velocity of the other, and in general they would proceed always together after the meeting; and in particular, as I said at the beginning, that one which is in motion would carry forward the one in repose, without receiving any diminution of its speed, and without the size, equality or inequality of the two bodies changing in any respect; a thing utterly irreconcilable with experience. And even if we should suppose that size ought to make a change in the movement we should have no principle for determining the means of estimating it in detail, and for knowing the

resulting direction and velocity. In any case we should incline to the opinion of the conservation of motion; whereas I believe that I have proved that the same force is preserved, and that its quantity is different from the quantity of the motion.

All this shows that there is in matter something other than what is purely geometrical; that is, than extension and its change pure and simple. And when we consider it well we perceive that there must be joined to it some higher or metaphysical notion, to wit: that of *substance*, *action* and *force;* and that these notions show that everything which suffers must act reciprocally, and that everything which acts must suffer some reaction; and consequently that a body at rest cannot be carried along by another in motion without changing something of the direction and of the velocity of the agent.

I agree that naturally every body is extended, and that there is no extension without body. Nevertheless the notions of place, of space, of pure extension, must not be confounded with the notion of substance which besides extension includes resistance, that is action and passion.

This consideration seems to me important. not only in order to know the nature of extended substance, but also in order not to slight in physics the higher and immaterial principles, to the prejudice of piety. For although I am persuaded that everything takes place mechanically in corporeal nature I do not cease to believe also that even the principles of mechanics, that is, the first laws of motion, have a more exalted origin than that which pure mathematics can furnish. And I imagine that if this were better known or more considered many pious persons would not have such a bad opinion of the corpuscular philosophy, and modern philosophers would better join the knowledge of nature with that of its author.

I do not enlarge upon other reasons touching the nature of body for that would lead me too far.

[Extract from a Letter in Support of what he published in the "Journal des Savans" of June 18, 1691. 1693.]

To prove that *the nature of the body does not consist in extension* I made use of an argument explained in the *Journal des Savans* of June 18, 1691, the gist of which is that we cannot explain by mere extension the *natural inertia of bodies;* that is, that which

causes matter to resist movement, or in other words that which brings it about that a body which is already in motion cannot carry along with it another which is at rest, without being retarded thereby. For extension in itself, being indifferent to movement and to rest, nothing ought to hinder the two bodies from going along together with all the velocity of the first, which it tries to impress upon the second. To this, answer is made in the *Journal* of July 16th of the same year (as I learned only a short time ago), that *really body ought to be indifferent to movement or to rest, supposing that its essence consists only in being extended;* but that nevertheless a body impelling another must be retarded by it (not because of extension but because of force), because *the same force which was applied to one of the bodies is now applied to both.* Now the force which moves one of the bodies with a certain velocity must move the two together with less velocity. It is as if it were said in other words that body, if it consist in extension, ought to be indifferent to motion, but that in reality not being indifferent to it, since it resists that which ought to give it motion, it is necessary to employ, in addition to the notion of *extension*, that of *force*. Thus this reply grants just what I wish. And in truth those who are in favor of the system of *Occasional Causes* have already clearly perceived that force and the laws of motion which depend on it, cannot be drawn from extension alone, and as they have taken for granted that there is only extension in matter, they have been obliged to deny to it force and action and to have recourse to the general cause, which is the pure will and action of God. As to which it may be said that they have very well reasoned *ex hypothesi*. But the hypothesis has not yet been proved; and as the conclusion appears not to accord in physics, there is more probability for saying that there is a mistake in the hypothesis (which moreover involves many other difficulties), and that there must be recognized in matter something more than what consists in the mere relation of extension; which, like space, is incapable of action and of resistance, these pertaining only to substances. Those who hold that extension itself is a substance reverse the order of words as well as of thoughts. Besides extension, there must be a subject which is extended, that is, a substance to which it belongs to be repeated or continued. For *extension* signifies only a repetition or continued multiplication of that which is extended;

a plurality, continuity and co-existence of parts; and hence extension is not sufficient to explain the nature of the extended or repeated substance, the notion of which is anterior to that of its repetition.

VII.

Animadversions on Descartes' *Principles of Philosophy.* 1692.

[From the Latin.]

On Article 1. As to what is said by Descartes, that we must doubt all things in which there is the least uncertainty, it would be preferable to express it by this better and more expressive precept: We ought to think what degree of acceptance or dissent everything merits; or more simply, We ought to inquire after the reasons of any dogma. Thus the Cartesian wranglings concerning doubt would cease. But perhaps the author preferred παραδοξολογεῖν, in order that he might excite the listless reader by novelty. But I could wish that he himself had remembered his own precept, or rather, that he had conceived its true force. We shall explain it and its use best by the example of the geometers. It is agreed among them that there are axioms or postulates, on the truth of which all other things rests. We admit these, both because they immediately satisfy the mind and because they are verified by numberless examples; and nevertheless it would be of importance to the perfection of science that they be demonstrated. This, Apollonius and Proclus in olden time and recently Robervallius, among others, have attempted. And certainly just as Euclid wished to demonstrate that two sides of a triangle taken together are greater than the third (as a certain one of the ancients jestingly said, even asses know enough to go after their food by a straight line, not by a roundabout way), because indeed he wished that geometrical truths should rest not on images of the senses but on reasons; so also he could have demonstrated that two right lines (which if extended do not meet) can have only one common point, if he had had a good definition of right. And I know that the demonstrating of axioms is of great use to a true analysis or art of discovery. Thus if Descartes had wished to follow what is best in his precept, he ought to have labored toward demonstrating the principles of the sciences, and to have done in philosophy what Proclus wished to do in geometry where it is less necessary. But it seemed preferable to our author to have applause, rather than to have certainty. Nor would I blame him for being content with

probability, if he had not aroused our minds by such a great profession of strictness: but I blame Euclid much less when he makes assumptions without proof, for he maintained that we know that if a few hypotheses are admitted, all else is sure and thus equal to them in trustworthiness. If Descartes or other philosophers had done something similar to this, we would not be troubled. And the skeptics also, who condemn the sciences on the pretext that they use principles not immediately demonstrated, ought to regard this as said to them. I, on the contrary, hold that the geometers ought rather to be praised because they prop up the sciences by these, as it were, pegs, and devise an art of proceeding and of deducing many things from few; for if they had wished to defer the invention of theorems or problems until all axioms or postulates had been demonstrated, we should perhaps to-day have no geometry.

On Article 2. For the rest I do not see of what use it is to consider doubtful things as false. This would not be to cast aside prejudices, but to change them. But if fiction is so understood, it must not be abused, as, for example, when later on in Article 8 a paralogism will seem to arise when the distinction of the mind from the body is discussed.

On Article 4. Moreover we can neither know nor ought we to desire anything of sensible things than that they harmonize as well among themselves as with indubitable reasons and in such a way that future things may, in a certain degree, be foreseen from past things. Any other truth or reality will be sought in them in vain than that which this vouches for, nor ought skeptics ask anything else nor the dogmatics promise it.

On Article 5. We cannot otherwise doubt of mathematical demonstrations except as error may be feared in the reckoning of arithmeticians. This cannot be remedied except by examining the reckoning often, or by different reckonings, confirming proofs being added. This weakness of the human mind, arising from want of attention and of memory, cannot be perfectly removed, and what is adduced by Descartes as a remedy is useless. The same thing suffices as guarantee in other departments which suffices in mathematics; indeed all reasoning, even the Cartesian, however proved or accurate, will yet be subject to this doubt, whatever may finally be thought of any powerful deceptive genius or of the difference between sleep and wakefulness.

On Article 6. We have free will not in thinking but in acting. It is not in my will whether honey shall seem to be sweet or bitter, but neither is it in the power of my will whether a theorem proposed to me shall seem true or false, but it is a matter of consciousness alone to consider what seems so. Whoever has affirmed anything is conscious either of a present feeling or reason, or, at least, of a present memory renewing a past feeling or a perception of a past reason; although we are often deceived in this by failure of memory or lack of attention. But consciousness of anything present or past assuredly does not belong to our will. We know that this one thing is in the power of our faculty of will: namely, that it may command attention and zeal, and thus, although it may not make an opinion in us, it can nevertheless indirectly contribute to it. So it happens that often men finally believe that what they wish is true, after they have accustomed the mind to attending most of all to those things which favor it; in which way they bring about that it satisfies not only the will but also consciousness. Cf. Art. 31.

On Article 7. *I think therefore I am* is well remarked by Descartes to be among first truths. But it was but just that he should not neglect others equal to this. In general, therefore, it may be said: Truths are either of fact or of reason. The first of the truths of reason is, as Aristotle rightly observed, the principle of *contradiction* or, what amounts to the same thing, of *identity*. First truths of fact are as many as the immediate perceptions, or those of consciousness, so to speak. Moreover not only am I conscious of my thinking but also of my thoughts. Nor is it more certain that I think than that this or that is thought by me. Thus first truths of fact may be not inconveniently referred to these two, *I think*, and *Various things are thought by me*. Whence it follows not only that I am but also that I am affected in various ways.

On Article 8. This is not valid: "I am able to assume or imagine that no corporeal things exist but I am not able to imagine that I do not exist or that I do not think; therefore I am not corporeal, nor is thought a mode of body." And I marvel that such an able man could attribute so much to so light a sophism; certainly he adds nothing more in this article. What he brings forward in his *Meditations* will be examined in its proper place. He who thinks that the mind is corporeal, will not admit that you can affirm

that no corporeal things exist; but he will admit this, that you can doubt (as long as you are ignorant of the nature of the mind) whether corporeal things exist or do not exist; and since, nevertheless, you see clearly that your mind does exist, he will concede that this one thing thence follows, namely that you can doubt whether the mind is corporeal; nor will anything further be wrested by any tortures from this argument. But this furnished a handle to the paralogism in Art. 2 above, the liberty being assumed of rejecting what is doubted as if it were false, as if it were admissible to assume that there are no corporeal things because it can be doubted whether they exist, which ought not be conceded. It would be otherwise if we knew the nature of the mind as perfectly as we know its existence, for thus whatever did not appear in it, it would be agreed was not in it.

On Article 13. I have already remarked, on Art. 5, that the errors which may arise from want of memory or attention and which occur also in arithmetical calculations (even after a perfect method has been found as in numbers) are recounted here to no purpose, since no art can be devised in which they are not to be feared, especially when the reasoning must be long drawn out; and that therefore we must have recourse to examinations. As for the rest, God seems to be summoned hither for a sort of show or pomp; not to mention that the strange fiction or doubt, whether we are not made to err even in matters most evident, ought to move no one, since the nature of evidence is against it and the experiences and successes of all life are contrary to it. And if ever this doubt could justly be raised, it would be absolutely insuperable; it would confront even Descartes himself and every one else even when presenting the most evident things; this I say, not to mention that it must be known that this doubt is not established by denying God nor removed by introducing him. For even if there were no God, provided it were possible for us to continue to exist, there would be no reason for our being less capable of truth; and although it be conceded that there is a God, it does not therefore follow that a creature exceedingly fallible and imperfect does not exist, especially when it may be that its imperfection is not native, but perhaps superinduced by a great sin, as Christian theologians teach concerning original sin, yet so that this sin cannot be imputed to God. Moreover although God does not seem to be here aptly in-

troduced, I think, nevertheless, but in a different way, that true knowledge of God is the principle of higher wisdom; for God is not less the first cause than the ultimate reason of things; nor are things known better than from their causes and reasons.

On Article 14. The argument for the existence of God drawn from the notion itself of him, Anselm, Archbishop of Canterbury, first, so far as is known, discovered and stated in his extant *Liber contra Insipientem*. And it was examined here and there by the writers of the scholastic theology and by Aquinas himself, whence Descartes, not without study of it, seems to have borrowed it. This reasoning possesses some beauty but is nevertheless imperfect. The argument amounts to this: Whatever may be demonstrated from the notion of a thing, that can be attributed to the thing. Now from the notion of most perfect or greatest being, existence can be demonstrated. Therefore existence can be attributed to the most perfect being (God), or God exists. The assumption is proved: Most perfect or greatest being includes all perfections, therefore existence also, which undoubtedly is of the number of perfections, since to exist is more or greater than not to exist. Thus far the argument. But if perfection or magnitude had been omitted, the argument might have been constructed even more strictly and more closely in this way. Necessary being exists (or being to whose essence existence belongs, or being of itself exists), as is evident from the terms. Now God is such a being (from the definition of God); therefore God exists. These arguments are valid, provided it be admitted that most perfect or necessary being is *possible*, and does not imply contradiction, or, what is the same thing, that the essence from which existence follows is possible. But as long as this has not been demonstrated, it certainly ought not to be thought that the existence of God has been perfectly demonstrated by such an argument. And, generally, it ought to be known (as I formerly urged), that from a definition nothing can be safely inferred concerning the thing defined, so long as it is not established that the definition expresses something possible. For if, perchance, it implies some hidden contradiction, it might happen that something absurd would be deduced from it. Meanwhile from this argument we become acquainted with this wonderful privilege of the divine nature that *provided it be possible it exists of itself*, which is not sufficient for proving existence in other things. There

only remains for the geometrical demonstration of the divine existence that the possibility of God be demonstrated with accurate severity in geometrical rigor. Meanwhile the existence of that which only lacks possibility receives great faith: as for the rest, that there is some necessary thing is evident from the fact that contingent things exist.

On Article 18. We have an idea of a most perfect being, and therefore the cause of this idea (that is, the most perfect being) exists. This which is Descartes' second argument, is even more doubtful than the possibility of God. It is denied also by many of those who with great zeal acknowledge that God is not only possible but that he exists. Nor is it true, what I remember Descartes somewhere says, that when we speak of something, understanding what we say, we have the idea of the thing. For it often happens that we combine incompatibles, as when we think of *quickest motion*, which is admitted to be impossible and therefore lacks idea; and nevertheless we admit that we speak of this with understanding. Indeed it has been explained by me elsewhere that we often only confusedly think that of which we speak, and are not conscious of an idea existing in our mind unless we understand the thing and resolve it as far as is sufficient.

On Article 20. The third argument is burdened with this same vice, as well as others, since it assumes that the idea of the highest perfection of God is in us, and hence it concludes that God exists, since we who have this idea exist.

On Article 21. From the fact that we now are, it follows that we shall still hereafter be, unless a reason of change exists. So unless it were established elsewhere that we could not even exist unless by favor of God, nothing would be proved for the existence of God from our duration; as if indeed one part of this duration could be wholly independent of the other; which is not to be admitted.

On Article 26. Although we are finite, we may nevertheless know many things concerning the infinite, as concerning asymptotic lines or those which produced *ad infinitum* always approach but never meet; concerning infinite spaces not greater than a finite length as respects area; concerning the last members of series which are infinite. Otherwise we should know nothing certain concerning God either. Moreover it is one thing to know something of a

thing, another to comprehend the thing, that is, to have in our power whatever lies hidden in the thing.

On Article 28. As to what pertains to the ends which God proposed to himself, I clearly think both that those ends of God are to be known and to be investigated with great profit and that contempt of this inquiry is not free from peril or suspicion. And, in general, as often as we see that something has remarkable uses, we may safely assert that among others this end also, namely, that he might furnish these uses, was proposed to God when producing this thing, since he both knew and procured this use of the thing. Elsewhere I have noted and shown by examples that certain hidden physical truths of great moment, which cannot be so easily known through efficient causes, might be disclosed by the consideration of final cause.

On Article 30. Even if we admit a perfect substance, which is undoubtedly not the cause of imperfections, the true or fictitious grounds for doubting which Descartes introduced are not thus removed, as I have already noticed, Art. 13.

On Articles 31, 35. That errors depend more upon the will than upon the intellect, I do not admit. To believe that true which is false or that false which is true when this may be known by investigating, this is to err. So also through consciousness or memory certain perceptions or reasons arise, and therefore do not depend on the will except in so far as in some indirect way, and sometimes even unknown to us, it may happen that we seem to ourselves to see those things which we will. Cf. Art. 6. We judge therefore not because we will but because it appears. And as for the saying that the will is wider than the intellect, this is more sounding than true; in a word, I may say it is but trappings for the people. We will nothing except it appear to the intellect. The origin of all errors is the same, that which is observed as the reason of errors of reckoning among arithmeticians. For it often happens from a defect of attention or memory that we do what we ought not to do, or leave undone what we ought to do, or think that we have done what we have not done or that we have not done what we have done. So it happens that in reckonings (to which reasoning corresponds in the mind) the right figures are not set down, wrong ones are put down, something is passed over among the things which ought to be taken into account, the method is disturbed. Our mind, indeed, wearied or

distracted, does not, for its present operations, sufficiently attend to the matter; or, by an error of memory, it assumes as if formerly proved that which only adheres to us deeply because it has been often inculcated or fixedly regarded or eagerly desired. The remedy also for our errors is the same as that for the errors of reckoning, namely, that we attend to the matter and to the form, that we proceed slowly, that we repeat and vary the operation, that we institute examinations or proofs, that we divide longer reasonings into parts, by which the mind may breathe, and that we confirm each part, as may be, by particular proofs. And since we must in action sometimes be hurried, the great thing is to have acquired presence of mind for one's self by force of habit, just as those have done who in the midst of tumult and even without writing or calculations are none the less able to compute large numbers, so that the mind is not easily distracted either by the external senses or by its own imaginations or emotions, but always rises above what it is doing and retains the power of regarding, or, as we commonly say, of turning itself back upon itself, so that presently, in place of an external admonisher it may say, "See what you are doing, say why you are here, the hour passes." The Germans admirably call this *sich begreiffen;* the French not less happily, *s'aviser*, as if it were to warn one's self, to suggest to one's self, as the nomenclators suggested to Roman candidates the names and merits of citizens worthy to be taken, as the prompter suggests to the comedian the initial words of the rest of the piece, as a certain youth suggested to Philip, king of Macedon, "Remember you are mortal." But this *turning of the mind*, *s'aviser*, is not in our power nor in the election of our will; on the contrary it must first occur to the intellect, and it depends on the present degree of our perfection. It belongs to the will in advance to strive zealously that the mind be well prepared, which is advantageously done both by the consideration of the experiences and losses or dangers of others, and also by the use of our own, but (as is allowable) this is at the risk of the loss of time or at least of a light or ludicrous injury; but at the same time there is the accustoming of the mind to a certain order and method of thinking so that afterwards it may occur, when it is needed, as if voluntarily. There nevertheless are errors which without guilt escape or are not avoided. Where we are in trouble not by defect of judgment but by want of memory

or ability we are not so much in error as we are ignorant, for we cannot bring it about that we may either know or remember what we will. That kind of directing the mind suffices by which we fight against lack of attention, and as often as memory repeats to us past proofs which perchance were in reality none, we have a confused recollection which is suspicious; and either we repeat the inquiry if it may be done and the matter is important, or we do not rely on past care unless it is sufficiently tested.

On Article 37. The highest perfection of man is not more that he acts freely than that he acts with reason; or rather, both are the same, since the freer one is the less is the use of reason disturbed by the violence of the emotions.

On Article 39. To ask whether there is liberty in our will is the same as to ask whether choice is in our will. Free and voluntary mean the same thing. For free is the same as spontaneous with reason; and to will is to be carried to action by a reason perceived by the intellect; moreover the more unconditional the reason is and the less the impulse has of bare and confused perception mixed with it, the freer the action is. To abstain from judgments does not belong to our will but to the intellect suggesting some attention to itself, as has been already said on Art. 35.

On Article 40. If anyone thinking that God has preordained all things and nevertheless that he himself is free, and his arguments exhibiting conflict among themselves, makes this one reply, as Descartes orders; namely: that his mind is finite and cannot comprehend such things, he seems to me to reply to the conclusion, not to the argument, and to cut, not to untie, the knot. The question is not whether you comprehend the thing itself, but rather whether you do not comprehend your absurdity on my showing it. There must certainly be a contradiction also in the mysteries of faith not less than in the mysteries of nature. Therefore if you wish to excel as a philosopher, it behooves that you take up the argument, which one of your opponents infers with some appearance of truth from your assertions, and point out the defect in it, which assuredly can always be done, unless you have erred.

On Articles 43, 45, 46. I have elsewhere called attention to the fact that there is no great use in this rule which is laid down, *of approving only what is clear and distinct*, unless better marks of clear and distinct are brought forward than those which

Descartes gave. The rules of Aristotle and the geometers are better, namely: That we should admit nothing, principles (i. e. first truths and hypotheses) of course excepted, unless proved by legitimate argument; legitimate, I say, that is, burdened neither with defect of form nor of matter. But it is a defect of matter if anything except principles or again things proved from principles by legitimate argument, be assumed. But I understand the right form to be not only the common syllogistic form, but also any other predemonstrated which concludes by force of its own disposition; which also the forms of the operations of the arithmeticians and algebraists, the forms of the book-keepers, indeed also, in some degree, the forms of judiciary process, do: for occasionally we are content to proceed with a certain degree of resemblance. Nevertheless the part of logic, especially useful in life for estimating degrees of probability, remains still to be discussed, concerning which not a few things have been noted down by me. On form, compare further what is said on Art. 75.

On Articles 47, 48. Some one, I know not who (I think it was Comenius), formerly rightly criticized Descartes for promising, Art. 47, summarily to enumerate all simple notions, and yet directly in the following Article 48, he deserts us, and, some being named, he adds: *and the like;* besides which the larger part of those which he does name are not simple. This is an inquiry of greater moment than is thought.

On Article 50. Truths entirely simple but which nevertheless are not admitted on account of the prejudged opinion of men, we must take especial pains to demonstrate by those more simple.

On Article 51. I do not know whether the definition of substance as *that which needs the concurrence of God alone to exist* is appropriate for any created substance known to us, unless interpreted in some less common meaning. For not only do we need other substances, but we need also much more accidents. Since therefore substance and accident mutually need each other, there is need of other marks for discriminating substance from accident; among which may be this, that although the substance may need some accident it often nevertheless does not need a determinate one but when this one is taken away is content with the substitution of another; the accident, however, not only needs some substance in general but also that one of its own in which it is once

present, so that it may not change it. Nevertheless there remain other things to be said elsewhere concerning the nature of substance, of greater moment and of more profound discussion.

On Article 52. I confess that there is one principle of substance and one attribute of it, expressing its essence; but I do not know whether it can be explained in words, and those few, so that if you understand individual substance, other kinds of substances may be explained by definitions. But that extension constitutes the common nature of corporeal substance I see asserted by many with great confidence, never proved. Certainly neither motion nor action nor resistance nor passion is thence derived; nor do the laws of nature which are observed in the motion and conjunction of bodies come from the mere notion of extension, as I have elsewhere shown. And indeed the notion of extension is not primitive but resolvable. For it is required in extension that there be a whole *continuum*, in which many things exist at once. And, to speak farther, to extension indeed, the notion of which is relative, something is required which is extended or continued, as in milk whiteness, in body that itself which makes its essence: the repetition of this (whatever it may be) is extension. And I certainly agree with Huygens (whose opinion in natural philosophy and mathematics is of great weight with me) that the conception of a vacant space and of mere extension is the same; nor in my opinion can mobility itself or *ἀντιτυπία* be understood of mere extension but of the subject of extension, by which place is not only constituted but also filled.

On Article 54. I do not remember that as yet it has been perfectly demonstrated either by our author or by his partisans that thinking substance is devoid of extension or extended substance of thought, so that thence it is evident that the one attribute is not required for the other in the same subject nor indeed can consist with it. Nor is this surprising; for the author of the book, *Search After Truth* (in which some excellent things are said), correctly remarks that no distinct notion of thought is offered by the Cartesians, and thus it is not strange if what is involved in it is not clear to them.

On Articles 60, 61. To deny a real distinction between modes is not a necessary change of the received use of words. For hitherto it has been held that modes exist between things, and they have

been seen to really differ, as a spherical wax figure from a square one; certainly there is a true change from one figure to the other, and thus it has a real foundation.

On Article 63. To conceive thought and extension as the thinking substance itself or the extended substance itself seems to me neither right nor possible. This device is suspicious and like that by which doubtful things were commanded to be considered false. Minds are prepared by these distortions of things for pertinacity and for false reasonings.

On Articles 65 to 68. Descartes performed a useful service after the ancients in eradicating that prejudice by which we regard heat, color and other phenomena as something outside of us; when it is evident that what seemed very hot is soon felt by the same hand to be tepid; and he who observes a green color in a pulverized mixture, his eye being presently assisted, no longer perceives a green color but a mixture of yellow and blue, and, with a better equipment or other experiences or reasons, the causes of these two may be perceived; from which it appears that no such thing exists outside of us, the phantasm of which hovers before our imagination. We are ordinarily like boys who are persuaded that a golden pot is to be found at the very end of the rainbow where it touches the earth, which in vain they try to find by running.

On Articles 71 to 74. On the causes of errors we have said something above, on Arts. 31 and 35. From these also the reason for the present ones may be given. For the prejudices of infancy have to do with unproved assertions. Fatigue, moreover, lessens attention; and ambiguity of words belongs to the abuse of signs and makes an error in form; and thus it is as if (as the German proverb says) X were put in place of V in a calculation, or as if a quack doctor in a prescribed formula should select sandarach instead of dragon's blood.

On Article 75. It seems to me fair that we should give to the ancients each one his due, nor by a silence, malignant and injurious to ourselves, conceal their merits. Those things which Aristotle prescribed in his *Logic*, although not sufficient for discovery, are nevertheless almost sufficient for judging; at least where he treats of necessary consequences; and it is important that the conclusions of the human mind be established as if by certain mathematical rules. And it has been noted by me that those who

admit false reasonings in serious things oftener sin in logical form than is commonly believed. Thus in order to avoid all errors there is need of nothing else than to use the most common rules of logic with great constancy and severity. But since the complication of things often does not admit of this pedantry, we hence furnish, in the sciences and in things to be done, certain special logical forms, which ought to be demonstrated beforehand by those general rules; the nature of each subject being taken into account; just as Euclid had a certain logic of his own concerning conversions, compositions, divisions of reasons, established first in the special book on elements, and afterwards ruling in the whole geometry. And thus brevity and certainty are at once regarded; and the more there are of these, the more there is of science and of whatever there is that is refined. Those things are to be added which we have noted on Articles 43 et seq., concerning reasonings which are said to be made in form and which extend farther than is commonly believed.

On Part II.

On Article 1. The argument by which Descartes seeks to demonstrate that material things exist is weak; it were better therefore not to try. The gist of the argument is this: The reason why we believe in material things is external to us, and hence either from God or from another or from things themselves; not from God, if no things exist, for he would be a deceiver; not from another, this he has forgotten to prove; therefore from themselves, therefore they themselves exist. It might be replied, that a sensation may be from an other than God, who as he permits all other evils for certain weighty reasons so may permit this deceiving of us without having the character of a deceiver, especially as it is joined with no injury, since it would rather be unpleasant to us not to be deceived. Besides the deception therein, which the argument conceals, is that it may be that the perceptions are from God or from another but that the judgment (concerning the cause of the sensation, whether it be from a real object outside of us), and hence the deception, comes from ourselves. Just as happens also when colors and other things of this sort are considered as real objects. Besides souls might have merited by previous sins that they lead this life full of deception where they snatch at shadows for things; to which the Platonists do not seem to be averse, to whom this life seemed as

a sleep in the cave of Morpheus, the mind being demented by Lethean draughts before it came thither.

On Article 4. That body consists in extension alone Descartes tries to demonstrate by an enumeration of the other attributes which he removes, but it ought to have been shown that the enumeration is sufficient; then not all are well removed, certainly those who admit atoms, that is bodies of greatest hardness, denied that hardness consists in this, namely, that the body does not yield to the motion of the hands, but rather in this, that it preserves its form. And those who place the essence of body in *ἀντιτυπία*, or impenetrability, do not derive its notion from our hands or senses but from the fact that it does not give place to another homogeneous body unless it itself can go elsewhere. Just as if we imagine that against a cube there run six other cubes precisely similar to and resembling the first, so that each one of them with one of its sides accurately coincides with one side of the intercepting cube; on this supposition it would be impossible for either the intercepting cube itself or a part of it to be moved, whether it be understood as flexible or as rigid. But if that middle cube be held to be penetrable extension or empty space then the six concurring cubes will oppose their angles to each other mutually; if however they are flexible, nothing will prevent the middle parts of these from breaking into the intercepting cubical space. Whence also we understand what is the difference between hardness, which belongs to certain bodies, and impenetrability, which belongs to all; which latter Descartes ought to have remembered not less than hardness.

On Articles 5, 6, 7. Descartes has excellently explained that rarefaction and condensation such as we perceive by the senses may take place although neither interspersed vacuum nor a change of dimensions of the same part of matter be admitted.

On Articles 8 to 19. Not a few of those who defend a vacuum consider space as a substance, nor can they be refuted by the Cartesian arguments; other principles are needed to end this dispute. They will admit that quantity and number do not exist outside of the things to which they are attributed, but they will deny that space or place is quantity of body, and they will rather believe that it has quantity or capacity and that body is equal to it in content. Descartes had to show that internal space or place does not differ from the substance of body. Those who are contrary minded will

defend themselves by the common notion of mortals who think that body succeeding body passes over the same space and the same place which has been deserted by a previous body; but this cannot be said if space coincides with the substance itself of body. Although to have a certain situation or to be in a given place is an accident of body they will nevertheless no more admit that place itself is an accident of body than that as contact is an accident, so also what is touched is an accident. And indeed Descartes seems to me not so much to bring forward good reasons for his own opinion as to reply to opposing arguments; which in this place he does not unskillfully. And he often employs this artifice in place of demonstration. But we expected something more and if I am not mistaken we were commanded to expect more. To nothing, it must be confessed, there is no extension, and this may be rightly hurled against those who make space an imaginary something. But those to whom space is a substance are not affected by this argument; they would indeed be affected if Descartes had shown above, what he here assumes, that every extended substance is body.

On Article 20. The author does not seem satisfactorily to oppose atoms. Their defenders concede that they may be divided as well in thought as by divine power. But whether bodies which have a firmness inseparable to the forces of nature (which is the true notion of atom among them) can exist naturally, is a question which Descartes (what I wonder at) does not even touch upon in this place, and nevertheless he here declares that atoms have been overthrown by him, and he assumes it in the whole course of his work. We shall have more to say on atoms on Article 54.

On Articles 21, 22, 23. That the world has no limits of extension and thus can only be one, then that all matter everywhere is homogeneous and is not distinguished except by motions and figures, are opinions which are here built upon the proposition, which is neither admitted by all nor demonstrated by the author, that extension and body are the same thing.

On Art. 25. If motion is nothing but change of contact or immediate vicinity, it follows that it can never be determined which thing is moved. For as in astronomy the same phenomena are presented in different hypotheses, so it is always permissible to ascribe real motion to either one or other of those bodies which change among themselves vicinity or situation; so that one of

these bodies being arbitrarily chosen as if at rest or, for a given reason moving in a given line, it may be geometrically determined what motion or rest must be ascribed to the others so that the given phenomena may appear. Hence if there is nothing in motion but this respective change, it follows that no reason is given in nature why motion must be ascribed to one thing rather than to others. The consequence of this will be that there is no real motion. Therefore in order that a thing can be said to be moved, we require not only that it change its situation in respect to others, but also that the cause of change, the force or action, be in it itself.

[The remarks on the rest of the book, excepting those on *Articles* 45 and 64, are omitted here as being of little philosophical interest. They treat principally of Descartes' opinions as to the laws of motion.]

On Article 45. Before I undertake to examine the special laws of motion laid down by our author, I will give a general criterion, or Lydian stone as it were, by which they may be examined, which I am accustomed to call *the law of continuity*. I have recently explained it elsewhere, but it must be repeated here and amplified. Certainly when two hypotheses or two different data continually by turns approach until at length one of them ends in the other, it must be also that the *quæsita aut eventa* of both by turns continually approach one another, and finally, that one vanishes in the other, and *vice versa*. Thus it is with ellipses one focus of which remains unmoved, if the other focus recedes from it more and more, then the new ellipses which are thus produced will continually approach a parabola and finally wholly vanish in it, since indeed the distance of the receding focus will have become immeasurable. Whence both the properties of such ellipses will approach more and more to the properties of a parabola so far even that they finally vanish in them, and also a parabola may be considered as an ellipse one focus of which is infinitely distant, and hence all the properties of ellipses may be also verified of a parabola as if of such an ellipse. And indeed geometry is full of examples of this kind; but nature, the most wise Author of which employes the most perfect geometry, observes the same, otherwise no ordered progress would be preserved in it. Thus motion gradually decreasing finally vanishes into rest, and inequality continually diminished ends in true equality, so that rest

may be regarded as infinitely slight motion or as infinite slowness, and equality as infinitely slight inequality; and for this reason whatever may be demonstrated either of motion in general or of inequality in general must also according to this interpretation be verified of rest or of equality, so that the law of rest or of equality may in a certain way be conceived as a special case of the law of motion or of inequality. But if this does not follow, it must be considered as certain that the rules are awkward and badly conceived.

On Article 64. The author closes the Second and General Part concerning the principles of material things with a certain admonition which seems to me to need restriction. He says truly that in order to explain the phenomena of nature there is no need of other principles than those found in abstract mathematics or in the theory of magnitude, figure and motion. Nor does he recognize any other matter than that which is the subject of geometry. I indeed fully assent that all the special phenomena of nature can be explained mechanically if they are sufficiently examined by us, nor can the causes of material things be understood in any other way. But I think also that this ought to be repeatedly considered, that the very mechanical principles and hence the general laws of nature are derived from higher principles, nor can they be explained by the mere consideration of quantity and of that which is geometrical, but that there is rather in them something metaphysical, independent of the notions which the imagination presents and which must be referred to a substance destitute of extension. For in addition to extension and its variations there is in matter force itself or power of acting which forms a transition from metaphysics to nature, from material things to immaterial. This force has its own laws derived from principles not of mere absolute and, so to speak, brute necessity as in mathematics but of perfect reason. But these being embraced together in a general discussion, afterwards when a reason is given for the phenomena of nature, all can be explained mechanically, and as vainly as fundamental (*archæi*) perceptions and desires, and operating ideas, and forms of substances, and souls also are then employed, so vainly would we call in the universal cause of all, as a *Deus ex machina*, to explain each natural thing by his simple will, which I remember the author of *Philosophia Mosaica* does, the words of Sacred Scripture being badly understood. He who will consider this properly will hold a

middle position in philosophy and will satisfy theology no less than physics, and he will understand that it was not so much a sin of the schoolmen to hold the doctrine of *intelligible forms* as to apply it as they did, at the time when the inquiry was rather of the modifications and instruments of substance and its manner of acting, that is, its mechanism. Nature has as it were an empire within an empire, and so to say a double kingdom, of reason and of necessity, or of forms and of particles of matter; for just as all things are full of spirits, so also they are full of organized bodies. These realms without confusion between them are governed each by its own law, nor is the reason of perception and of desire in the modifications of extension, any more than the reason of nutrition and of other organic functions are to be found in forms or spirits. But this highest substance, which is the universal cause of all, brings it about by his infinite wisdom and power that these two very different series are referred to the same corporeal substance and perfectly harmonize between themselves just as if one was controlled by the influence of the other; and if you observe the necessity of matter and the order of efficient powers, you observe that nothing happens without a cause satisfying the imagination and except on account of the mathematical laws of mechanism; or if you regard the circle of ends as a golden chain and of forms as an intelligible world, the apexes of ethics and of metaphysics being joined in one on account of the perfection of the supreme author, you notice that nothing can be done without the highest reason. For God and eminent form and first efficient are the same, and he is the end or final reason of things. Moreover it is our part to reverence his footprints in things, and not only to admire his instruments in operating and the mechanical cause of material things, but also the higher uses of admirable ingenuity, and as we recognize God as the architect of bodies so also to recognize him especially as the king of minds and his intelligence as ruling all things for the best, which constitutes the most perfect Republic of the Universe under the most powerful and wisest of Monarchs. Thus in the particular phenomena of nature and in the connection of each consideration, we shall consult equally utility of life and perfection of mind, and wisdom no less than piety.

VIII.

Leibnitz's Reply to the Extract from the Letter of M. Foucher, Canon of Dijon, published in the "Journal" of March 16. 1693.

[From the French.]

One ought to be very glad, sir, that you give a reasonable meaning to the doubt of the Academicians. It is the best apology that you could make for them. I shall be charmed to see sometime their views digested and made clear by your pains. But you will be obliged from time to time to lend them some ray of your light, as you have begun to do.

It is true that I wrote two little discourses, twenty years ago, one *on the theory of abstract motion*, wherein I considered it as outside of the system, as if it were a thing purely mathematical; the other *on the hypothesis of concrete and systematic motion*, such as really is met with in nature. There may be some good in them since you with others judge so. However there are many points on which I believe that I am better instructed at present, and among others I explain to-day *indivisibles* in an entirely different way. That was the attempt of a young man who had not yet fathomed mathematics. The laws of abstract motion which I gave at that time would really hold good if there was nothing else in body but what is conceived there according to Descartes and even according to Gassendi. But as I have found that nature treats body quite differently as regards motion it is one of my arguments against the received notion of the nature of body, as I have indicated in the *Journal des Savans* of June 2, 1692.

As regards *indivisibles*, when by that word is understood simple extremities of time or of line, new extremities could not be conceived in them, nor actual nor pretended parts. Thus points are neither large nor small, and there needs no leap to pass them. However, although there are such *indivisibles* everywhere, continuity is not composed of them, as the objections of the sceptics appear to suppose. In my opinion these objections have nothing insurmountable about them, as will be found by reducing them to form. Gregory of St. Vincent has well shown by the calculations

even of divisibility *ad infinitum*, the place where Achilles ought to overtake the tortoise which precedes him, according to the proportion of velocities. Thus geometry serves to dissipate these apparent difficulties.

I am so much in favor of the actual infinite that instead of admitting that nature abhors it, as is commonly said, I hold that it affects it everywhere in order better to mark the perfections of its author. So I believe that there is no part of matter which is not, I do not say divisible, but actually divided; and consequently the least particle must be regarded as a world full of an infinity of different creatures.

IX.

Extract from a Letter to the Abbé Nicaise on the Philosophy of Descartes. 1793.

[From the French.]

I honor exceedingly the Bishop d'Avranches, and I beg you, sir, to give him my respects when occasion offers. One of my friends in Bremen having sent me the book of Herr Swelling, professor there, against the censure of that illustrious prelate, in order to have my opinion of it, I replied that the best answer that the Cartesians could make would be to profit by the advice of d'Avranches; to emancipate themselves from the spirit of sect, always contrary to the advancement of the sciences; to unite to the reading of the excellent works of Descartes that of some other great men, ancient and modern; not to despise antiquity, whence Descartes has taken a good part of his best thoughts; to give themselves to experiments and to demonstrations in place of those general reasonings which serve but to support idleness and to cover up ignorance; to try to make some advance and not to content themselves with being simple paraphrasers of their master, and not to neglect or despise anatomy, history, the languages, criticism, for want of knowing their importance and value; not to imagine that we know all that is necessary or all we may hope to; finally, to be modest and studious, in order not to draw upon themselves this apt saying: *Ignorantia inflat.* I shall add that I do not know how or by what star, the influence of which is the enemy of every sort of secret, the Cartesians have done almost nothing that is new, and that almost all the discoveries have been made by persons not of the sect. I know but the little pipes of M. Rohault, which do not deserve the name of a Cartesian discovery. It seems that those who attach themselves to a single master abase themselves by this kind of slavery and conceive almost nothing except in imitation of him. I am sure that if Descartes had lived longer he would have given us many important things. This shows us either that it was rather his genius than his method, or else that he has not published his method. In fact I remember having read in one of his letters that he intended simply to write a discourse on his method, and to

give some examples of it; but that he had no intention of publishing it. Thus the Cartesians who think that they have the method of their master deceive themselves very much. Nevertheless, I imagine that this method was not so perfect as we are made to believe. I think so from his geometry. This is, without doubt, his strong point; nevertheless we know to-day that it is very far from going as far as it ought to go and as he said it went. The most important problems need a new sort of analysis entirely different from his, examples of which I myself have given. It seems to me that Descartes did not sufficiently penetrate the important truths of Kepler on astronomy which the course of time has verified. His "*Man*" is very different from the true man, as M. Stenon and others have shown it to be. The knowledge he had of salts and chemistry was very meagre; this is the reason that what he says thereon, as well as on minerals, is mediocre. The metaphysics of this author, although it has some fine traits is intermingled with great paralogisms, and has some very weak passages. I have discovered the source of his errors as to the laws of motion, and although I esteem very highly his physics it is not because I regard it as true, except in some particular things, but because I consider it as an admirable model and as an example of what could and ought now to be produced on principles more solid than experiments have thus far furnished us with. In a word, I esteem Descartes very highly, but very often it is not permitted me to follow him. I have in the past made remarks on the first and second parts of his "Principles." The parts comprise, in epitome, his general philosophy, in which I have most often been obliged to separate myself from him. The following parts come to the detail of nature, which is not yet so easily explained. This is why I have not yet touched it. But I do not know how I have been insensibly led to entertain you so long on this subject.

X.

On the Reform of Metaphysics and of the Notion of Substance. 1694.

[From the Latin.]

I see that most of those who devote themselves with pleasure to the study of mathematics entertain a dislike for that of metaphysics because in the former they find clearness and in the latter obscurity. I think that the principal reason of this is that general notions, which are believed to be perfectly known by all, have become ambiguous and obscure by the negligence of men and by the inconsistency of their thoughts, and that what are ordinarily given as definitions are not even nominal definitions, because they explain absolutely nothing. And it is not to be wondered at that this evil has spread into the other sciences, which are subordinate to this first and *architectonic* science. Thus we have subtile distinctions in place of clear definitions, and in place of truly universal axioms we have general rules which are more often broken by exceptions than supported by examples. And yet men by a sort of necessity frequently make use of metaphysical terms, and flatter themselves that they understand what they have learned to say. And it is manifest that the true and fruitful meanings not only of *substance* but also of *cause*, of *action*, of *relation*, of *similarity* and most other general terms, lie for the most part hidden. Whence it is not surprising that this queen of the sciences, which is called *first philosophy* and which Aristotle defined as the science *desired* or *to be sought for* (ζητουμένη), remains to-day in the number of the sciences sought. Plato, it is true, often in his Dialogues inquires into the value of notions; Aristotle does the same in his books entitled *Metaphysics;* nevertheless, without much apparent profit. The later Platonists fall into monstrosities of language, and the disciples of Aristotle, especially the Scholastics, were more desirous of raising questions than of answering them. In our day some illustrious men have also devoted themselves to the *first philosophy*, but up to the present time without much success. It cannot be denied that Descartes brought to it many excellent things; that he has above all the merit of having renewed Platonic

study by turning the mind away from the things of sense and of having afterwards employed usefully academic scepticism; but soon, by a sort of inconsistency or of impatience to affirm, he was led astray, no longer distinguishing the certain from the uncertain, and hence making the nature of corporeal substance incorrectly consist in extension and holding a false conception of the union of the soul and the body, the cause of which was that the nature of substance in general was not understood. For he had proceeded at a bound, as it were, to the solution of the gravest questions, without having explained the notions which they implied. Hence, nothing shows more clearly how far his metaphysical meditations are removed from certainty than the writing in which, at the prayer of Mersenne and others, he vainly tried to clothe them with a mathematical garb. I see also that other men gifted with rare penetration have broached metaphysics and treated some parts of it with profoundness, but enveloping them with so much obscurity that they appear to surmise rather than to prove. But metaphysics, it seems to me, has more need of clearness and certainty than even the mathematics, because the latter carry with them their proofs and corroborations which is the principal cause of their success; whereas in metaphysics we are deprived of this advantage. Therefore a certain particular plan is necessary in exposition which, like the thread in the Labyrinth, serves us, no less than the method of Euclid, for resolving our problems after the manner of calculus, preserving, nevertheless, always the clearness which even in common conversation should not be sacrificed.

How important these things are is apparent, especially from the *notion of substance* which I give, because it is so fruitful that from it first truths, even those which concern God and souls and the nature of bodies, follow; truths in part known but not sufficiently proved; in part unknown up to this time but which would be of the greatest usefulness in the other sciences. To give a foretaste of them, it is sufficient for me to say that the idea of *energy* or virtue, called by the Germans *kraft*, and by the French *la force*, and for the explanation of which I have designed a special science of *dynamics*, adds much to the understanding of the *notion of substance*. For active force differs from the bare power familiar to the schools, in that the active power or faculty of the scholastics is nothing else than the possibility ready to act, which

has nevertheless need, in order to pass into action, of an external excitation, and as it were of a stimulus. But active force includes a sort of act or ἐντελέχειαν, which is midway between the faculty of acting and the action itself, and involves an effort, and thus of itself passes into operation; nor does it need aid other than the removal of impediments. This may be illustrated by the example of a heavy hanging body straining the rope which sustains it, or a tense bow. For although gravity or elastic force may and must be explained mechanically from the motion of ether, nevertheless the final reason of motion in matter is the force impressed upon it at the creation, a force inherent in every body, but which is variously limited and confined in nature by the very meeting of bodies. I say, then, that this property of acting resides in every substance, that always some sort of action is born of it; and that, consequently, corporeal substance, no less than spiritual, never ceases to act; a truth which those who place its essence in mere extension or even in impenetrability, and who have imagined that they conceived of body absolutely at rest, seem not to have sufficiently understood. It will appear also from our meditations that a created substance receives from another created substance, not the force itself of acting but only the limits and determination of an already pre-existent tendency or virtue of acting. I omit here other considerations useful for the solution of the difficult problem concerning the mutual operation of substances.

XI.

A New System of Nature, and of the Interaction of Substances, as well as of the Union which exists between the Soul and the Body. 1695.

[From the French.]

1. I conceived this system many years ago and communicated it to some learned men, and in particular to one of the greatest theologians and philosophers of our time, who, having been informed of some of my opinions by a very distinguished person, had found them highly paradoxical. When, however, he had received my explanations, he withdrew his condemnation in the most generous and edifying manner; and, having approved a part of my propositions, he ceased censuring the others with which he was not yet in accord. Since that time I have continued my meditations as far as opportunity has permitted, in order to give to the public only thoroughly examined views, and I have also tried to answer the objections made against my essays in dynamics, which are related to the former. Finally, as a number of persons have desired to see my opinions more clearly explained, I have ventured to publish these meditations although they are not at all popular nor fit to be enjoyed by every sort of mind. I have been led to do this principally in order that I might profit by the judgments of those who are learned in these matters, inasmuch as it would be too inconvenient to seek and challenge separately those who would be disposed to give the instructions which I shall always be glad to receive, provided the love of truth appears in them rather than passion for opinions already held.

2. Although I am one of those who have worked very hard at mathematics I have not since my youth ceased to meditate on philosophy, for it always seemed to me that there was a way to establish in it, by clear demonstrations, something stable. I had penetrated well into the territory of the scholastics when mathematics and modern authors induced me while yet young to withdraw from it. Their fine ways of explaining nature mechanically charmed me; and, with reason, I scorned the method of those who employ only forms or faculties, by which nothing is learned. But

afterwards, when I tried to search into the principles of mechanics to find proof of the laws of nature which experience made known, I perceived that the mere consideration of an *extended mass* did not suffice and that it was necessary to employ in addition the notion of *force*, which is very easily understood although it belongs to the province of metaphysics. It seemed to me also that the opinion of those who transform or degrade animals into simple machines, notwithstanding its seeming possibility, is contrary to appearances and even opposed to the order of things.

3. In the beginning, when I had freed myself from the yoke of Aristotle, I occupied myself with the consideration of the void and atoms, for this is what best fills the imagination; but after many meditations I perceived that it is impossible to find the principles of *true unity* in mere matter, or in that which is only passive, because there everything is but a collection or mass of parts *ad infinitum*. Now, multiplicity cannot have its reality except from *real unities*, which originate otherwise and are entirely different things from the points of which it is certain the *continuum* could not be composed. Therefore, in order to find these real unities I was compelled to resort to a formal atom, since a material being could not be at the same time material and perfectly indivisible, or in other words, endowed with true unity. It became necessary, therefore, to recall and, as it were, reinstate the *substantial forms*, so decried now-a-days, but in a way to render them intelligible, and distinguish the use which ought to be made of them from the abuse which had befallen them. I found then that their nature is force and that from this something analagous to sensation and desire results, and that therefore it was necessary to conceive them similarly to the idea which we have of *souls*. But as the soul ought not to be employed to explain the details of the economy of the animal body, likewise I judged that it was not necessary to employ these forms to explain particular problems in nature although they are necessary in order to establish true general principles. Aristotle calls them the *first entelechies*. I call them, perhaps more intelligibly, *primitive forces* which contain in themselves not only the *act* or complement of possibility, but also an original *activity*.

4. I saw that these forms and these souls ought to be indivisible, just as much as our mind, as in truth I remembered was the

opinion of St. Thomas in regard to the souls of brutes. But this innovation renewed the great difficulties in respect to the origin and duration of souls and of forms. For every *simple substance* which has true unity cannot begin or end except by miracle; it follows, therefore, that it cannot begin except by creation, nor end except by annihilation. Therefore, with the exception of the souls which God might still be pleased to create expressly, I was obliged to recognize that the constitutive forms of substances must have been created with the world, and that they must exist always. Certain scholastics, like Albertus Magnus and John Bacon, had also foreseen a part of the truth as to their origin. And the matter ought not to appear at all extraordinary for only the same duration which the Gassendists accord their atoms is given to these forms.

5. I was of the opinion, nevertheless, that neither *spirits* nor the rational soul, which belong to a superior order and have incomparably more perfection than these forms implanted in matter which in my opinion are found everywhere—being in comparison with them, like little gods made in the image of God and having within them some rays of the light of divinity, ought to be mixed up indifferently or confounded with other forms or souls. This is why God governs spirits as a prince governs his subjects, and even as a father cares for his children; while he disposes of the other substances as an engineer manipulates his machines. Thus spirits have peculiar laws which place them above the changes which matter undergoes, and indeed it may be said that all other things are made only for them, the changes even being adapted to the felicity of the good and the punishment of the bad.

6. However, to return to ordinary forms or to *material souls* [*âmes brutes*], the duration which must be attributed to them in place of that which had been attributed to atoms, might raise the question as to whether they pass from body to body, which would be *metempsychosis*—very like the belief of certain philosophers in the transmission of motion and of the species. But this fancy is very far removed from the nature of things. There is no such passage; and here it is that the *transformations* of Swammerdam, Malpighi and Leewenhoeck, who are the best observers of our time, have come to my aid and have made me admit more easily that the animal and every other organized substance does not at all begin when we think it does, and that its apparent generation is only a

development and a sort of augmentation. Also I have noticed that the author of the *Search after Truth* [i. e., Malebranche], Rigis, Hartsoeker and other able men, have not been far removed from this opinion.

7. But the most important question of all still remained: What do these souls or these forms become after the death of the animal or after the destruction of the individual of the organized substance? It is this question which is most embarrassing, all the more so as it seems unreasonable that souls should remain uselessly in a chaos of confused matter. This obliged me finally to believe that there was only one reasonable opinion to hold, namely, that not only the soul but also the animal itself and its organic machine were preserved, although the destruction of its gross parts had rendered it so small as to escape our senses now just as much as it did before it was born. Also there is no person who can accurately note the true time of death, which can be considered for a long time solely as a suspension of visible actions, and indeed is never anything else in mere animals; witness the *resuscitation* of drowned flies after being buried under pulverized chalk, and other similar examples, which make it sufficiently clear that there would be many more resuscitations and of far more intricacy if men were in condition to set the machine going again. And apparently it was of something of this sort that the great Democritus, atomist as he was, spoke, although Pliny makes sport of the idea. It is then natural that the animal having, as people of great penetration begin to recognize, been always living and organized, should so remain always. And since, therefore, there is no first birth nor entirely new generation of the animal, it follows that there will be no final extinction nor complete death taken in its metaphysical rigor, and that in consequence instead of the *transmigration* of souls there is only a *transformation* of one and the same animal, according as its organs are folded differently and more or less developed.

8. Nevertheless, rational souls follow very much higher laws and are exempt from all that could make them lose the quality of being citizens in the society of spirits, God having planned for them so well, that all the changes in matter cannot make them lose the moral qualities of their personality. And it can be said that everything tends to the perfection not only of the universe in gen-

eral but also of those creatures in particular who are destined to such a measure of happiness that the universe finds itself interested therein, by virtue of the divine goodness which communicates itself to each one, according as sovereign wisdom permits.

9. As regards the ordinary body of animals and of other corporeal substances, the complete extinction of which has up to this time been believed in, and the changes of which depend rather upon mechanical rules than upon moral laws, I remarked with pleasure that the author of the book *On Diet*, which is attributed to Hippocrates, had foreseen something of the truth when he said in express terms that animals are not born and do not die, and that the things which are supposed to begin and to perish only appear and disappear. This was also the opinion of Parmenides and of Melissus, according to Aristotle, for these ancients were more profound than is thought.

10. I am the best disposed in the world to do justice to the moderns; nevertheless I think they have carried reform too far, for instance, in confounding natural things with artificial, for the reason that they have not had sufficiently high ideas of the majesty of nature. They conceive that the difference between its machines and ours is only that of large to small. This caused a very able man, author of *Conversations on the Plurality of Worlds*, to say recently that in regarding nature close at hand it is found less admirable than had been believed, being only like the workshop of an artisan. I believe that this does not give a worthy idea of it and that only our system can finally make men realize the true and immense distance which there is between the most trifling productions and mechanisms of the divine wisdom and the greatest masterpieces of the art of a finite mind, this difference consisting not merely in degree but also in kind. It must then be known that the machines of nature have a truly infinite number of organs and that they are so well protected and so proof against all accidents that it is not possible to destroy them. A natural machine remains a machine even to its least parts and, what is more, it remains always the same machine it has been, being only transformed by the different folds it receives, and sometimes expanded, sometimes compressed and, as it were, concentrated when believed to be lost.

11. Farther, by means of the soul or of form there arises a true unity which answers to what we call the *I* in us, that which could

take place neither in the machines of art nor in the simple mass of matter however well organized it might be, which can only be considered as an army, or as a herd of cattle, or as a pond full of fish, or as a watch composed of springs and wheels. Nevertheless, if there were not real *substantial unities* there would be nothing substantial or real in the mass. It was this which forced Cordemoi to abandon Descartes, and to embrace Democritus' doctrine of the Atoms, in order to find a true unity. But *atoms of matter* are contrary to reason, leaving out of account the proof that they are made up of parts, for the invincible attachment of one part to another (if such a thing could be conceived or with reason supposed) would not at all destroy their diversity. Only *atoms of substance*, i. e., unities which are real and absolutely destitute of parts, are sources of actions and the absolute first principles of the composition of things, and, as it were, the last elements of the analysis of substances. They might be called *metaphysical points;* they possess a certain *vitality* and a kind of *perception*, and *mathematical points* are their *points of view* to express the universe. But when corporeal substances are compressed all their organs together form only a *physical point* to our sight. Thus physical points are only indivisible in appearance; mathematical points are so in reality but they are merely modalities: only metaphysical points or those of substance (constituted by forms or souls) are exact and real, and without them there would be nothing real, for without true unities there could not be multiplicity.

12. After having established these propositions I thought myself entering into port, but when I came to meditate on the union of the soul with the body I was as if cast back into the open sea. For I found no way of explaining how the body can cause anything to pass into the soul, or *vice versa;* nor how one substance can communicate with another created substance. Descartes gave up the attempt on that point, as far as can be learned from his writings, but his disciples seeing that the common view was inconceivable, were of the opinion that we perceive the qualities of bodies because God causes thoughts to arise in the soul on the occasion of movements of matter; and when the soul wished to move the body in its turn they judged that it was God who moved it for the soul. And as the communication of motions again seemed to them inconceivable, they believed that God gave motion to a body on the

occasion of the motion of another body. This is what they call the system of *Occasional Causes* which has been much in vogue on account of the beautiful remarks of the author of the *Search after Truth.*

13. It must be confessed that the difficulty has been well penetrated when the not-possible is stated, but it does not appear that it is done away with by explaining what actually takes place. It is indeed true that there is no real influence of one created substance upon another, speaking in metaphysical strictness, and that all things with all their realities are continually produced by the power of God; but in resolving problems it is not enough to employ a general cause and to call in what is called the *Deus ex Machina.* For when this is done and there is no other explanation which can be drawn from secondary causes, it is, properly, having recourse to miracle. In philosophy it is necessary to try to give reasons by making known in what way things are done by divine wisdom, in conformity to the idea of the subject concerned.

14. Being then obliged to admit that it is not possible for the soul or any true substance to receive any influence from without, if it be not by the divine omnipotence I was led insensibly to an opinion which surprised me but which appears inevitable and which has in truth great advantages and many beauties. It is this: it must then be said that God created the soul, or every other real unity, in the first place in such a way that everything with it comes into existence from its own substance through perfect *spontaneity* as regards itself and in *perfect harmony* with objects outside itself. And that thus our internal feelings (i. e., those within the soul itself and not in the brain or finer parts of the body), being only phenomena consequent upon external objects or true appearances, and like well-ordered dreams, it is necessary that these internal perceptions within the soul itself come to it by its own proper original constitution, i. e., by the representative nature (capable of expressing beings outside itself by relation to its organs), which has been given it at its creation and which constitutes its individual character. This brings it about that each of these substances in its own way and according to a certain point of view, represents exactly the entire universe, and perceptions or impressions of external things reach the soul at the proper point in virtue of its *own laws*, as if it were in a world apart, and as if there existed nothing

but God and itself (to make use of the manner of speaking of a certain person of great elevation of mind, whose piety is well known); there is also perfect harmony among all these substances, producing the same effects as if they communicated with each other by a transmission of kinds or of qualities, as philosophers generally suppose.

Farther, the organized mass, within which is the point of view of the soul, being expressed more nearly by it, finds itself reciprocally ready to act *of itself*, following the laws of corporeal machines, at the moment when the soul *wills* it, without either one troubling the laws of the other, the nerves and the blood having just at that time received the impulse which is necessary in order to make them respond to the passions and perceptions of the soul: it is this mutual relationship, regulated beforehand in every substance of the universe, which produces what we call their *inter-communication* and alone constitutes the *union between the soul and body*. And we may understand from this how the soul has its seat in the body by an immediate presence which could not be greater, for it is there as the unit is in the complex of units, which is the multitude.

15. This hypothesis is very possible. For why could not God give to a substance in the beginning a nature or internal force which could produce in it to order (as in a *spiritual or formal automaton, but free* here since it has reason to its share), all that which should happen to it; that is to say all the appearances or expressions it should have, and that without the aid of any creature? All the more as the nature of the substance necessarily demands and essentially includes a progress or change, without which it would not have power to act. And this nature of the soul, being representative, in a very exact (although more or less distinct) manner, of the universe, the series of representations which the soul will produce for itself will naturally correspond to the series of changes in the universe itself; as, in turn, the body has also been accommodated to the soul, for the encounters where it is conceived as acting from without. This is the more reasonable as bodies are only made for those spirits which are capable of entering into communion with God and of celebrating His glory. Thus from the moment the possibility of this *hypothesis of harmonies* is perceived, we perceive also that it is the most reasonable and that it gives a marvellous idea of the harmony of the universe and of the perfection of the works of God.

16. This great advantage is also found in it, that instead of saying that we are FREE only in appearance and in a way practically sufficient, as many persons of ability have believed, it must rather be said that we are only enchained in appearance, and that according to the strictness of metaphysical expressions we are in a state of perfect independence as respects the influence of all other creatures. This again places in a marvellous light the *immortality* of the soul and the always uniform preservation of our individuality, regulated perfectly by its own nature beyond the risk of all accidents from without, whatever appearance there may be to the contrary. Never has a system so clearly proved our high standing. Every spirit, being like a separate world sufficient to itself, independent of every other creature, enclosing the infinite, expressing the universe, is as durable, as stable and as absolute as the universe of creatures itself. Therefore we ought always to appear in it in the way best fitted to contribute to the perfection of the society of all spirits, which makes their moral union in the city of God. Here is found also a new *proof of the existence of God*, which is one of surprising clearness. For this perfect harmony of so many substances which have no communication with each other, can only come from a common cause.

17. Besides all these advantages which render this system commendable, it can also be said that this is more than an hypothesis, since it hardly seems possible to explain the facts in any other intelligible manner, and since several great difficulties which have exercised the mind up to this time, seem to disappear of themselves as soon as this system is well understood. The customary ways of speaking can still be retained. For we can say that the substance, the disposition of which explains the changes in others in an intelligible manner (in this respect, that it may be supposed that the others have been in this point adapted to it since the beginning, according to the order of the decrees of God), is the one which must be conceived of as *acting* upon the others. Also the action of one substance upon another is not the emission or transfer of an entity as is commonly believed, and cannot be understood reasonably except in the way which I have just mentioned. It is true that we can easily conceive in matter both emissions and receptions of parts, by means of which we are right in explaining mechanically all the phenomena of physics; but as the material mass is not

a substance it is apparent that action as regards substance itself can only be what I have just said.

18. These considerations, however metaphysical they may appear, have yet a marvellous use in physics in establishing the laws of motion, as our *Dynamics* can make clear. For it can be said that in the collision of bodies, each one suffers only by reason of its own elasticity, because of the motion which is already in it. And as to absolute motion, it can in no way be determined mathematically, since everything terminates in relations; therefore there is always a perfect equality of hypotheses, as in astronomy, so that whatever number of bodies may be taken it is arbitrary to assign repose or a certain degree of velocity to any one that may be chosen, without being refuted by the phenomena of straight, circular and composite motion. Nevertheless it is reasonable to attribute to bodies real movements, according to the supposition which explains phenomena in the most intelligible manner, since this description is in conformity to the idea of action which I have just established.

XII.

The Reply of M. Foucher to Leibnitz concerning his New System of the Interaction of Substances. 1695.

[From the French.]

Although your system is not new to me, sir, and although I made known to you, in part, my opinion in replying to a letter which you wrote me on this subject *more than ten years ago*, still I will not fail to tell you again what I think of it, since you ask me anew.

The first part aims only to make known in all substances the unities which constitute their reality and distinguish them from others, and form, to speak after the manner of the school, their *individuation;* this is what you remark *first* on the subject of matter or extension. I agree with you that it is right to inquire after *the unities which form the composition and the reality of extension*, for without this, as you very justly remark, *an always divisible extension is only a chimerical compound, the principles of which do not exist* since without unities no true multitude is possible. Nevertheless, I wonder that people are indifferent on this subject, *for the essential principles of extension cannot exist really.* In truth, points without parts cannot be in the universe, and two points joined together form no extension; it is impossible that any length can subsist without breadth, or any surface without depth. And it is of no use to bring forward physical points, for these points are extended and involve all the difficulties which we should like to avoid. But I will not longer delay on this subject on which you and I have already had a discussion in the *Journal* of the sixteenth of March, 1693, and of the third of August of the same year.

You introduce on the other hand another kind of unities which, strictly speaking, are unities of composition or of relation, and which respect the perfection or completion of a whole which, being organic, is destined for certain functions; for example, a clock is one, an animal is one; and you believe that you can give the name of *substantial forms* to the natural unities of animals and of plants, so that these unities shall form their individuation in distinguish-

ing them from every other compound. It seems to me that you are right in giving animals a principle of individuation other than that which is usually given them, which is only through relation to external accidents. In reality this principle must be internal, as much on the part of their soul as of their body, but whatever disposition there may be in the organs of the animal, that does not suffice to render it sensible. For finally all this concerns merely the organic and mechanical composition, and I do not see that you are thereby justified in constituting a *sensitive principle in brutes differing substantially from that of men.* And after all it is not without reason that the Cartesians acknowledge that if we admit a sensitive principle capable of distinguishing good from evil, it is consequently necessary also to admit in them reason, discernment and judgment. So, allow me to say to you, sir, that this does not solve the difficulty, either.

We come to your *concomitance* which forms the principal and second part of your system. We will admit that God, that great artisan of the universe, can adjust all the organic parts of the body of a man so well that they shall be capable of producing all the movements which the soul joined to this body might wish to produce in the course of its life, without its having the power to change these movements or to modify them in any way. And, reciprocally, God can produce a contrivance in the soul (be it a machine of a new kind or not), by means of which all the thoughts and modifications which correspond to these movements shall arise successively at the same moment that the body shall perform its functions. And I admit that this is not more impossible than to make two clocks agree so well and go so uniformly that at the moment when clock A shall strike twelve clock B also strikes, so that one would imagine that the two clocks are regulated by the same weight or the same spring. But after all, *to what can this great artifice in substances serve if not to make men believe that the one acts upon the other, although this is not true?* In reality, it seems to me that this system is hardly more advantageous than that of the Cartesians; and if we are right in rejecting theirs because it uselessly supposes that God, considering the movements which he himself produces in the body, produces also in the soul thoughts which correspond to these movements, *as if it were not more worthy of him to produce all at once the thoughts and modi-*

fications of the soul without needing bodies to serve as regulators and, so to speak, inform him what he ought to do—shall we not have reason to inquire of you why God does not content himself with producing all the thoughts and modifications of the soul (whether he do it immediately or by contrivance, as you will), without there being useless bodies which the mind can neither move nor know? Even to such an extent that although no movement should take place in the body, the soul would not cease to think always that there was one: just as those who are asleep think that they are moving their members and are walking, when nevertheless those members are at rest and do not move at all. Thus, during the waking state, souls would remain always persuaded that their bodies would move according to their desires, although, nevertheless, these vain and useless masses would be inactive and would remain in a continuous lethargy. Truly, sir, do we not see that these opinions are made expressly and that these *ex post facto* systems have been invented only to save certain principles which have been adopted? In fact, the Cartesians, supposing that there is nothing in common between spiritual and corporeal substances, cannot explain how one acts on the other; and consequently they are compelled to say what they do. But you, sir, who could free yourself by other ways, I am surprised that you embarrass yourself with their difficulties. For who does not see that when a balance is in equilibrium and inactive, if a new weight is added to one of the sides, forthwith movement appears and one of the counterweights makes the other rise in spite of the effort which the latter makes to descend. You conceive that *material beings are capable of efforts and of movement*; and it follows very naturally that the strongest effort must surpass the weakest. On the other hand you recognize also that *spiritual beings may make efforts*; and as there is no effort which does not suppose some resistance, it is necessary either that this resistance be stronger or weaker: if stronger, it overcomes; if weaker, it yields. Now it is not impossible that the mind making an effort to move the body finds it endowed with a contrary effort which resists—sometimes more, sometimes less, and which suffices to cause it to suffer thereby. It is thus St. Augustine, in his books on music, explains of set purpose the action of spirits on bodies.

I know that there are many other questions to be raised before resolving from first principles all those which might be agitated:

so true is it that one ought to observe the laws of the academicians. the second of which forbids the calling in question those things which one easily sees cannot be decided, such as are almost all those of which we have just spoken; not that these questions are absolutely insoluble but because they can only be solved in a certain order, which requires that philosophers begin by agreeing as to the infallible mark of truth, and confine themselves to demonstrating from first principles; and by waiting, one can always separate that which is conceived clearly and sufficiently from other points or subjects which embrace some obscurity.

This, sir, is what I can say at present of your system, without speaking of the other fine subjects of which you there incidentally treat, and which would merit particular discussion.

XIII.

EXPLANATION OF THE NEW SYSTEM CONCERNING THE COMMUNICATION BETWEEN SUBSTANCES, TO SERVE AS A REPLY TO THE MEMOIR OF M. FOUCHER INSERTED IN THE "*Journal des Savans*" OF SEPTEMBER 12, 1695. 1696.

[From the French.]

I REMEMBER, sir, that I believed I was fulfilling your wishes in communicating to you, many years ago, my philosophical hypothesis, although I assured you at the same time that I had not yet made up my mind to avow it. I asked for your opinion of it in exchange, but I do not remember to have received any objections from you; otherwise, teachable as I am, I should not have given you occasion to make the same objections to me twice. However, after the publication, they still come *apropos*. For I am not one of those in whom a prepossession takes the place of reason, as you will experience when you are able to bring forward some precise and weighty arguments against my opinions, a thing which apparently has not been your design on this occasion. You have wished to speak as a skillful academician and thus give opportunity for a thorough examination of these subjects.

I have not wished to explain here the principles of extension, but those of *effective extension* or of corporeal mass; and these principles, in my opinion, are *real unities;* that is, substances endowed with true unity. The unity of a clock, of which you make mention, is entirely different, with me, from that of an animal, which latter is capable of being a substance endowed with a true unity, like what we call the *ego* in us; whereas a clock is nothing but an assemblage. It is not in the disposition of the organs that I place the sensitive principle of animals, and I admit that it concerns only the corporeal mass. So it seems that you do not make me out to be wrong when I demand true unities and when for this reason I rehabilitate substantial forms. But when you seem to say that the soul of brutes must possess reason if feeling is ascribed to it you make use of a conclusion, the force of which I do not see.

You admit, with praiseworthy sincerity, that my hypothesis of harmony or of concomitance is possible. But you do not conceal a

certain repugnance to it; undoubtedly because you have believed it purely arbitrary, not having been informed that it follows from my view of unities, for therein everything is connected. You demand then, sir, what purpose all this contrivance which I attribute to the author of nature may serve? As if one could attribute too much of it to him, and as if this exact correspondence which substances have among themselves by laws of their own which each one has received in the beginning, was not a thing admirably beautiful in itself and worthy of its author. You ask, too, what advantage I find herein. I might refer to what I have already said of it; nevertheless, I reply, in the first place, that when a thing cannot but be it is not necessary that, in order to admit it, we should demand of what use it is. Of what use is the incommensurability of the side with the diagonal? I reply, in the second place, that this correspondence serves to explain the communication of substances and the union of the soul with the body by laws of nature established beforehand, without having recourse either to a transmission of species, which is inconceivable, or to fresh assistance from God, which appears very unsuitable. For it must be understood that as there are laws of nature in matter, so there are like laws in souls or forms, and these laws effect what I have just stated.

I shall be asked, farther, whence it comes that God does not content himself with producing all the thoughts and *modifications* of the soul without these *useless* bodies which the soul, they say, can neither *move nor know?* The reply is easy. It is that God has willed that there should be more rather than fewer substances, and that he has thought it good that these *modifications* of the soul should answer to something external. There is no *useless* substance; they all coöperate in the design of God. I am unwilling, also, to admit that the soul *does not know* the body at all, although this knowledge is gained without the influence of one upon the other. I should even have no difficulty in saying that the soul *moves* the body; and as a Copernican speaks truly of the rising of the sun, a Platonist of the reality of matter, a Cartesian of the reality of sensible qualities, provided that he is rightly understood, so I believe that it is quite true to say that substances act, the one on the other, provided that it be understood that one is the cause of the changes in the other in consequence of the laws of harmony. As to the objection concerning the *lethargy* of bodies, that they

would be inactive while the soul would think them in movement, this could not be, because of this same unfailing correspondence which the divine wisdom has established. I know no *vain, useless and inactive masses* of which you speak. There is action everywhere, and I establish that fact better than the received philosophy does, because I believe that there is no body without movement, nor substance without effort.

I do not understand in what the objection consists contained in the words, "In truth, sir, do not we see that these opinions are made expressly, and that these *ex post facto* systems have been invented only in order to save certain principles?" All the hypotheses are made *expressly*, and all the systems follow *after*, to save phenomena or appearances; but I do not see what the principles are of which I am said to be *prepossessed*, and which I wish to *save*. If this means that I am led to my hypothesis by *a priori* reasons or by certain principles, as is in truth the fact, it is rather praise for the hypothesis than an objection. It is usually sufficient that a hypothesis prove itself *a posteriori*, because it satisfies the phenomena; but when there are also reasons elsewhere and *a priori*, it is so much the better. But perhaps this means that having invented a new opinion I have been very glad to employ it, in order to give myself the airs of an innovator, rather than because I recognized any usefulness in it. I do not know, sir, whether you have a poor enough opinion of me to attribute these thoughts to me. For you know that I love the truth and that if I affected novelties so much I should be in more haste to produce them, especially those the solidity of which is recognized. But in order that those who do not know me so well may not give your words a meaning we would not like, it will be sufficient to say that in my opinion it is impossible to explain otherwise *continual action* conformable to the laws of nature, and that I believe that the usefulness of my hypothesis will be recognized by the difficulty which the most sharp-sighted philosophers of our time have found in the communication between minds and bodies, and even of corporeal substances among themselves; and I do not know if you have not found some there yourself. It is true that there are, in my opinion, efforts in all substances, but these efforts are properly only in the substance itself; and what follows in the others is only in virtue of a *pre-established harmony* (if I may be

permitted to use this word), and in no wise by a real influence or by a transmission of some property or quality. As I have explained what action and passion are, you may infer also the meaning of effort and resistance.

You say you know, sir, that there are many other questions to be asked before those which we have just agitated can be decided. But perhaps you will find that I have already asked them, and I do not know whether your academicians have employed with greater rigor or with more effect than I what there is of good in their method. I highly approve of seeking to demonstrate truths from first principles; it is more useful than is thought, and I have put this precept into practice. So I approve of what you say on that head, and I would that your example would bring our philosophers to think of it as they should. I will add another reflection which seems to me important in making the reality and usefulness of my system better understood. You know that Descartes believed that the same quantity of motion is preserved in bodies. It has been shown that he was mistaken on that point, but I have made it apparent that it is always true that the same moving force, for which he had substituted the quantity of movement, is preserved. However, the changes which take place in bodies in consequence of the modifications of the soul embarrassed him, because they seemed to violate this law. He believed that he had found an expedient, which in truth is ingenious, by saying that we must distinguish between movement and direction, and that the soul cannot increase or diminish the moving force, but that it changes the direction or determination of the course of the animal spirits, and that it is in this way that voluntary movements take place. It is true that he was unwilling to explain how the soul acts to change the course of bodies, that which is as inconceivable as to say that it gives them movement, unless recourse is had with me to the pre-established harmony. But it should be known that there is *another law of nature*, which I have discovered and demonstrated, and which Descartes did not know. It is that not only is the same quantity of moving force preserved, but also the *same quantity of direction towards whatever side in the world is taken*. That is to say, drawing any straight line you please and taking also such and as many bodies as you please, you will find in considering all these bodies together, without omitting any of

those which act upon any one of those you have taken, that there will always be the same quantity of progress on the same side in all the parallels to the right line which you have taken, taking care to estimate the sum of the progress in omitting that of the bodies which move in the direction opposite to that of the bodies which move in the direction taken. This law, being just as beautiful and just as general as the other, no more deserves to be violated than the other; and this is avoided by my system, which preserves the force and the direction, and in a word all the natural laws of bodies, in spite of the changes which take place there, in consequence of those of the soul.

XIV.

Second Explanation of the System of the Communication between Substances. 1696.

[From the French.]

By your reflections, sir, I see clearly that the thought which one of my friends has published in the *Journal de Paris* has need of explanation.

You do not understand, you say, how I could prove that which I advanced concerning the communication or harmony of two substances so different as the soul and the body. It is true that I believe that I have found the means of doing so, and this is how I propose to satisfy you. Imagine two clocks or watches which agree perfectly. Now, this may take place in *three ways*. The *first* consists in a mutual influence; the *second* is to have a skillful workman attached to them who regulates them and keeps them always in accord; the *third* is to construct these two clocks with so much art and accuracy as to assure their future harmony. Put now the soul and the body in place of these two clocks: their accordance may be brought about by one of these three ways. The way of influence is that of common philosophy, but as we cannot conceive of material particles which may pass from one of these substances into the other, this view must be abandoned. The way of the continual assistance of the creator is that of the system of occasional causes; but I hold that this is to make a *Deus ex Machina* intervene in a natural and ordinary matter, in which, according to reason, he ought not to coöperate except in the way in which he does in all other natural things. Thus there remains only my hypothesis; that is, the way of harmony. From the beginning God has made each of these two substances of such a nature that merely by following its own peculiar laws, received with its being, it nevertheless accords with the other, just as if there were a mutual influence or as if God always put his hand thereto in addition to his general coöperation. After this I have no need of proving anything, unless you wish to require me to prove that God is sufficiently skillful to make use of this prevenient contrivance, examples of which we see even among men. Now,

taking for granted that he can do it, you easily see that this is the way most beautiful and most worthy of him. You suspected that my explanation would be opposed to the very different idea which we have of the mind and of the body; but you will presently clearly see that no one has better established their independence. For while it has been necessary to explain their communication by a kind of miracle, occasion has always been given to many people to fear that the distinction between the body and the soul was not as rèal as was believed, since in order to maintain it it was necessary to go so far. I shall not be at all sorry to sound enlightened persons concerning the thoughts which I have just explained to you.

XV.

Third Explanation. Extract from a letter of Leibnitz on his Philosophical Hypothesis and the curious Problem proposed by his friends to the Mathematicians. 1696.

[From the French.]

Some wise and penetrating friends, having considered my novel hypothesis concerning the great question of the union of soul and body, and having found it of importance have besought me to give some explanations of the difficulties which have been raised and which come from the fact that it has not been well understood.

I have thought that the matter might be rendered intelligible to every sort of mind by the following comparison:

Imagine two clocks or two watches which agree perfectly. Now this may happen in *three ways*. The first consists in the mutual influence of one clock on the other; the second, in the care of a man who attends thereto; the third, in their own accuracy.

The *first way*, which is that of influence, has been experimented on by the late M. Huygens, to his great astonishment. He had two large pendulums attached to the same piece of wood; the continual vibrations of these pendulums communicated similar vibrations to the particles of wood; but these different vibrations not being able to subsist very well in their order and without hindering each other, unless the pendulums agreed, it happened by a kind of marvel that even when their beats had been purposely disturbed they soon came again to beat together, almost like two chords which are in unison.

The *second way* of making two clocks, even although poor, always accord, would be to have a skillful workman who should see to it that they are kept in constant agreement. This is what I call the way of assistance.

Finally, the *third way* would be to make in the first place these two clocks with so much art and accuracy that we might be assured of their future accordance. This is the way of the pre-established agreement.

Put now the soul and the body in the place of these two clocks. Their harmony or sympathy will take place by one of these three

methods. The way of *influence* is that of common philosophy; but as we cannot conceive of material particles or properties, or immaterial qualities, which can pass from one of these substances into the other, we are obliged to abandon this view. The way of *assistance* is that of the system of occasional causes; but I hold that this is making a *Deus ex Machina* intervene in a natural and ordinary matter, when, according to reason, he ought not to intervene except in the manner in which he coöperates in all the other affairs of nature.

Thus, there remains only my hypothesis; that is, the way of a harmony pre-established by a prevenient divine contrivance, which from the beginning has formed each of these substances in a way so perfect and regulated with so much accuracy that merely by following laws of its own, received with its being, it nevertheless agrees with the other, just as if there were mutual influence, or as if God in addition to his general coöperation constantly put his hand thereto.

After this I do not think I need to prove anything, unless it be that you wish me to prove that God has everything necessary to making use of this prevenient contrivance, examples of which we see even among men, according to their skill. And supposing that he can do it you see well that this is the most admirable way and the one most worthy of him.

It is true that I have yet other proofs but they are more profound, and it is not necessary to state them here.

XVI.

Reflections on Locke's *Essay on Human Understanding*. 1696.

[From the French.]

I find so many marks of unusual penetration in what Mr. Locke has given us on the *Human Understanding* and on *Education*, and I consider the matter so important, that I have thought that the time would not be badly employed which I should give to such profitable reading; all the more as I have myself deeply meditated concerning that which has to do with the foundations of our knowledge. It is for this reason that I have jotted down on this sheet some of the reflections which have occurred to me in reading his *Essay on the Understanding*. Of all researches, there is none more important, because it is the key to all others.

The *first book* considers mainly the principles said to be born with us. Mr. Locke does not admit them any more than he does *innate ideas*. He has undoubtedly had good reasons for putting himself in opposition on this point to ordinary prejudices, for the name of ideas and principles is extremely abused. Common philosophers make themselves principles at their fancy; and the Cartesians, who profess more accuracy, do not fail to intrench themselves behind so-called ideas of *extension*, of *matter* and of the *soul*, wishing in this way to exempt themselves from the necessity of proving what they advance, on the pretext that those who will meditate on these ideas will find in them the same thing that they do; that is to say, that those who will accustom themselves to their manner of thinking will have the same prepossessions, which is very true.

My opinion is, then, that nothing ought to be taken as primitive principles except *experiences* and the axiom of *identity*, or, what is the same thing, *contradiction*, which is primitive, since otherwise there would be no difference between truth and falsehood; and since all researches would cease at the start if to say yes or no were indifferent. We cannot, therefore, prevent ourselves from supposing this principle as soon as we wish to reason. All other truths are capable of proof, and I highly esteem Euclid's method which, without stopping at what would be thought to be suffi-

ciently proved by the so-called ideas, has proved, for example, that in a triangle one side is always less than the other two together. Yet Euclid was right in taking some axioms for granted, not as if they were truly primitive and undemonstrable, but because he would have come to a standstill if he had wished to draw conclusions only after an accurate discussion of principles. Thus he judged it proper to content himself with having pushed the proofs up to this small number of propositions, so that it can be said that if they are true, all that he says is also true. He has left to others the trouble of demonstrating these principles themselves which, besides, are already justified by experience; but in these matters this does not content us. This is why Appolonius, Proclus and others have taken the trouble to demonstrate some of Euclid's axioms. This manner of proceeding ought to be imitated by philosophers in order to arrive finally at some established positions, even if they be but provisional, in the way of which I have just spoken.

As for ideas, I have given some explanation of them in a short essay entitled *Meditationes de Cognitione, Veritate et Ideis*, and I could have wished that Mr. Locke had seen and examined it; for I am one of the most docile of men, and nothing is more fitted to advance our thoughts than the considerations and remarks of persons of merit, when they are made with care and sincerity. Here I shall only say that true or real ideas are those of the possibility of whose fulfilment we are assured; the others are doubtful, or (in case of proof of impossibility), chimerical. Now the possibility of ideas is proved as much *a priori* by demonstrations, by making use of the possibility of other simpler ideas, as *a posteriori* by experience; for what is, cannot fail to be possible. But primitive ideas are those the possibility of which is undemonstrable, and which indeed are nothing else than the attributes of God.

As regards the question, *whether there are ideas and truths created with us*, I do not consider it absolutely necessary for the beginning nor for the practice of the art of thinking, to decide it; whether they all come to us from without, or whether they come from us, we will reason correctly if we observe what I have just said on this subject and if we proceed with order and without prejudice. The question concerning the *origin of our ideas and of our maxims* is not preliminary in philosophy, and we must have made

great progress to be able to answer it well. I think, however, that I can say that our ideas, even those of sensible things, come from within the soul [*de notre propre fond*], of which you may judge by what I have published concerning *the nature and interaction of substances* and what is called *the union of the soul with the body*. For I have found that these things had not been well understood. I am in no wise in favor of the *Tabula rasa* of Aristotle; and there is something sound in what Plato called *reminiscence*. There is even something more, for we have not only a *reminiscence* of all our past thoughts but also a *presentiment* of all our future thoughts. It is true that it is confusedly and without distinguishing them, very much as when I hear the sound of the ocean I hear that of all the waves in particular which make up the total sound, although it is without discerning one wave from another. And it is true in a certain sense, which I have explained, that not only our ideas but also our feelings, spring from within our own soul, and that the soul is more independent than is thought, although it is always true that nothing takes place in it which is not determined and that nothing is found in creatures which God does not continually create.

In the *second book*, which goes into the details of ideas, I confess that Mr. Locke's reasons for proving that the *soul is sometimes without thought* do not seem to me convincing, unless he gives the name of *thoughts* to only those perceptions sufficiently noticeable to be distinguished and retained. I hold that the soul and even the body is never without action, and that the soul is never without some perception. Even in dreamless sleep we have some confused and dim feeling of the place where we are and of other things. But even if experience should not confirm it, I believe that it may be demonstrated. It is very much as when we cannot prove absolutely by experience whether there is a vacuum in space, and whether there is rest in matter. And yet questions of this kind seem to me, as well as to Mr. Locke, to be decided demonstratively.

I assent to the difference which he makes with great reason between *matter* and *space*. But as concerns the vacuum, many learned people have believed in it. Mr. Locke is of this number. I was almost persuaded of it myself, but I gave it up long ago. And the incomparable Mr. Huygens, who was also for a vacuum and for the atoms, began at last to reflect upon my reasons, as his letters

can bear witness. The proof of a vacuum, taken from motion, of which Mr. Locke makes use, supposes that body is originally *hard*, and that it is composed of a certain number of inflexible parts. For in this case it would be true, whatever finite number of atoms might be taken, that motion could not take place without a vacuum, but all the parts of matter are divisible and pliable.

There are some other things in this second book which arrest me; for example, when it is said, chapter XVII, *that infinity is to be attributed only to Space, Time and Number.* I believe with Mr. Locke that, strictly speaking, it may be said that there is no space, no time and no number which is infinite, but that it is only true that however great may be a space, a time or a number, there is always another larger than it, *ad infinitum;* and that thus the true *infinite* is not found in a whole made up of parts. It is none the less, however, found elsewhere; namely, in the *absolute*, which is without parts and which has influence upon compound things because they result from the limitation of the absolute. Hence the *positive infinite* being nothing else than the absolute, it may be said that there is in this sense a positive idea of the infinite, and that it is anterior to that of the finite. For the rest, by rejecting a composite infinite, we do not deny what the geometricians, and especially the excellent Mr. Newton, prove *de Seriebus infinitis.*

As for what is said, chapter XXX, *de ideis adaequatis*, it is permissible to give to the terms the signification one finds apropos. Nevertheless, without finding fault with Locke's meaning, I put degrees in ideas, according to which I call those *adequate* in which there is nothing more to explain very much as in numbers. Now all ideas of sensible qualities, as of light, color, heat, not being of this nature, I do not count them among the *adequate;* also it is not through themselves nor *a priori*, but by experience that we know their reality or possibility.

There are again many good things in the *third book*, where he treats of *words* or *terms.* It is very true that everything cannot be defined, and that sensible qualities have no *nominal definition* and may be called primitive in this sense; but they can none the less receive a *real definition.* I have shown the difference between these two kinds of definition in the meditation quoted above. The *nominal definition* explains the name by the marks of the thing; but the *real definition* makes known *a priori* the possibility of the

thing defined. For the rest, I heartily approve of Mr. Locke's doctrine concerning the *demonstrability of moral truths*.

The *fourth or last book*, which treats of the *knowledge of truth*, shows the use of what has just been said. I find in it, as well as in the preceding books, numberless beautiful reflections. To make fitting remarks upon them would be to make a book as large as the work itself. It seems to me that the axioms in it are a little less considered than they deserve to be. It is apparently because, with the exception of those of the mathematicians, there are not ordinarily found any which are important and solid. I have tried to remedy this defect. I do not despise identical propositions, and I have found that they are of great service even in analysis. It is very true that we know our own existence by an immediate intuition, and that of God, by demonstration; and that a mass of matter, the parts of which are without perception, cannot make a whole which thinks. I do not despise the argument, invented some centuries ago by Anselm, which proves that the perfect being must exist; although I find something lacking in this argument, because it takes for granted that the perfect being is possible. For if this one point were proved in addition the whole demonstration would be complete.

As for the knowledge of other things, it is very well said that experience alone does not suffice for advancing sufficiently in physics. A penetrating mind will draw more conclusions from some very ordinary experiences than another could draw from the most choice; besides there is an art of experimenting and of interrogating, so to speak, nature. Yet it is always true that progress cannot be made in the details of physics except in proportion as one has experience.

Mr. Locke is of the opinion, held by many able men, that the forms of logic are of little use. I should be almost of the opposite opinion; and I have often found that paralogisms, even in mathematics, are faults of form. Mr. Huygens has made the same observation. Much might be said on this point, and many excellent things are despised because the use of which they are capable is not made of them. We are prompted to despise what we have learned in the schools. It is true that we there learn many useless things, but it is good to exercise the function *della Crusca*, that is, to separate the good from the bad. Mr. Locke can

do it as well as anyone whatsoever; and in addition he gives us important thoughts of his own. He is not only an assayer, but he is also a transmuter, by the augmentation which he makes of good metal. If he continued to make a present of it to the public we should be greatly indebted to him.

XVII.

On the Ultimate Origin of Things. 1697.

[From the Latin.]

In addition to the world or aggregate of finite things, there is some unique Being who governs, not only like the soul in me, or rather like the Ego itself in my body, but in a much higher relation. For one Being dominating the universe not only rules the world but he creates and fashions it, is superior to the world, and, so to speak, extra mundane, and by this very fact is the ultimate reason of things. For the sufficient reason of existence can be found neither in any particular thing nor in the whole aggregate or series. Suppose a book on the elements of geometry to have been eternal and that others had been successively copied after it, it is evident that, although we might account for the present book by the book which was its model, we could nevertheless never, by assuming any number of books whatever, reach a perfect reason for them; for we may always wonder why such books have existed from all time; that is, why books are and why they are thus written. What is true of books is also true of the different states of the world, for in spite of certain laws of transformation a succeeding state is in a certain way only a copy of the preceding, and to whatever anterior state you may go back you will never find there a perfect reason why, forsooth, there is any world at all, and such a world as exists. For even if you imagine the world eternal, nevertheless since you posit nothing but a succession of states, and as you find a sufficient reason for them in none of them whatsoever, and as any number of them whatever does not aid you in giving a reason for them, it is evident that the reason must be sought elsewhere. For in eternal things it must be understood that even where there is no cause there is a reason which, in perduring things, is necessity itself or essence, but in the series of changing things, if it were supposed that they succeed each other eternally, this reason would be, as will soon be seen, the prevalence of *inclinations* where the reasons are not necessitating (by an absolute or metaphysical necessity the opposite of which would imply contra-

diction), but inclining. From which it follows that by supposing the eternity of the world, an ultimate extramundane reason of things, or God, cannot be escaped.

The reasons of the world, therefore, lie hidden in something extramundane different from the chain of states or series of things, the aggregate of which constitutes the world. We must therefore pass from physical or hypothetical necessity, which determines the posterior states of the world by the prior, to something which is absolute or metaphysical necessity, the reason for which cannot be given. For the present world is necessary, physically or hypothetically, but not absolutely or metaphysically. It being granted, indeed, that the world is such as it is, it follows that things may hereafter be such as they are. But as the ultimate origin must be in something which is metaphysically necessary, and as the reason of the existing can only be from the existing, there must exist some one being metaphysically necessary, or whose essence is existence; and thus there exists something which differs from the plurality of beings or from the world, which, as we have recognized and shown, is not metaphysically necessary.

But in order to explain a little more clearly how, from eternal or essential or metaphysical truths, temporary, contingent or physical truths arise, we ought first to recognize that from the very fact that something exists rather than nothing, there is in possible things, that is, in the very possibility or essence, a certain need of existence, and, so to speak, some claim to existence; in a word, that essence tends itself towards existence. Whence it further follows that all possible things, whether expressing essence or possible reality, tend by equal right toward existence, according to their quantity of essence or reality, or according to the degree of perfection which they contain, for perfection is nothing else than quantity of essence.

Hence it is most clearly understood that among the infinite combinations of possibles and possible series, that one exists by which the most of essence or of possibility is brought into existence. And indeed there is always in things a principle of determination which is to be taken from the greatest and the smallest, or in such a way that the greatest effect is obtained with the least, so to speak, expenditure. And here the time, place, or as many say, the receptivity or capacity of the world may be considered as the

expenditure or the ground which can be most easily built upon, whereas the varieties of forms correspond to the commodiousness of the edifice and the multiplicity and elegance of its chambers. And it is with it in this respect as with certain games where all the spaces on a table are to be filled according to determined laws. Now, unless a certain skill be employed, you will be finally excluded by unfavorable spaces and forced to leave many more places empty than you can or wish. But there is a certain very easy way of filling the most possible space. Just as, therefore, if it is resolved to make a triangle, there being no other determining reason, it commonly happens that an equilateral results; and if it is resolved to go from one point to another without any further determination as to the way, the easiest and shortest path will be chosen; so it being once posited that being is better than not being, or that there is a reason why something should be rather than nothing, or that we must pass from the possibility to the act, it follows that even in the absence of every other determination the quantity of existence is as great as possible, regard being had to the capacity of the time and of the place (or to the possible order of existence), exactly as the squares are disposed in a given area in such a way that it shall contain the greatest number of them possible. From this it is now marvelously understood how in the very origin of things a sort of divine mathematics or of metaphysical mechanism was employed, and how the determination of the greatest quantity of existence takes place. It is thus that from all angles the determined angle in geometry is the right angle, and that liquids placed in heterogeneous positions take that form which has the most capacity, or the spherical; but especially it is thus that in ordinary mechanics itself, when several heavy bodies strive together the motion which results constitutes, on the whole, the greatest descent. For just as all the possibles tend by equal right to exist by reason of reality, so all weights tend by an equal right to descend by reason of their gravity; and as here a movement is produced which contains the greatest possible descent of heavy bodies, so there a world is produced in which is found realized the greatest number of possibles.

And thus we now have physical necessity from metaphysical; for although the world be not metaphysically necessary, in the sense that its contrary implies a contradiction or a logical absurdity, it is nevertheless physically necessary, or determined in such a way

that its contrary implies imperfection or moral absurdity. And as possibility is the principle of essence, so perfection or the degree of essence (through which the greatest possible number is at the same time possible), is the principle of existence. Whence at the same time it is evident that the author of the world is free, although he makes all things determinately; for he acts according to a principle of wisdom or of perfection. Indeed indifference arises from ignorance, and the wiser one is, the more determined one is to the highest degree of perfection.

But, you will say, however ingenious this comparison of a certain determining metaphysical mechanism with the physical mechanism of heavy bodies may appear, nevertheless it fails in this, that heavy bodies truly exist, whereas possibilities and essences prior to existence or outside of it are only fancies or fictions in which the reason of existence cannot be sought. I answer, that neither these essences nor these so-called eternal truths are fictions but that they exist in a certain region of ideas, if I may thus speak, that is in God himself, the source of all essences and of the existence of all else. And the existence of the actual series of things shows sufficiently of itself that my assertion is not gratuitous. For since the reason is not found in this series, as we have shown above, but must be sought in metaphysical necessities or eternal truths, and since that which exists can only come from that which existed, as we have remarked above, eternal truths must have their existence in a certain subject absolutely and metaphysically necessary, that is in God, through whom those things which otherwise would be imaginary, are, to speak barbarously but significantly, realized.

And in truth we discover that everything is done in the world according to the laws, not only geometrical but also metaphysical, of eternal truths; that is, not only according to material necessities, but also according to formal necessities; and this is true not only generally in that which concerns the reason, which we have just explained, of a world existing rather than non-existing, and existing thus rather than otherwise (a reason which can only be found in the tendency of the possible to existence); but if we descend to the special we see the metaphysical laws of cause, of power, of action holding good in admirable manner in all nature, and prevailing over the purely geometrical laws themselves of matter, as I found

in accounting for the laws of motion: a thing which struck me with such astonishment that, as I have explained more at length elsewhere, I was forced to abandon the law of the geometrical composition of forces which I had defended in my youth when I was more materialistic.

Thus, therefore, we have the ultimate reason of the reality, as well of essences as of existences, in a Being who is necessarily much superior and anterior to the world itself, since it is from him that not only the existences which this world contains, but also the possibles themselves derive their reality. And this reason of things can be sought only in a *single* source, because of the connection which they all have with one another. But it is evident that it is from this source that existing things continually emanate, that they are and have been its products, for it does not appear why one state of the world rather than another, the state of to-day rather than that of to-morrow, should come from the world itself. We see, also, with the same clearness, how God acts, not only physically but freely; how the efficient and final cause of things is in him, and how he manifests not only his greatness and his power in the construction of the machine of the world, but also his goodness and his wisdom in the creation. And in order that no one should think that we confound here moral perfection or goodness with metaphysical perfection or greatness, or that the former is denied while the latter is granted, it must be known that it follows from what has been said that the world is most perfect, not physically, or, if you prefer, metaphysically, because that series of things is produced in which there is the most reality in action, but also that it is most perfect morally, because really moral perfection is physical perfection for souls themselves. Thus the world is not only the most admirable machine, but in so far as it is composed of souls, it is also the best republic, through which as much happiness or joy is brought to souls as is possible, in which their physical perfection consists.

But, you will say, we experience the contrary in this world, for often good people are very unhappy, and not only innocent brutes but also innocent men are afflicted and even put to death with torture; finally, the world, if you regard especially the government of the human race, resembles a sort of confused chaos rather than the well ordered work of a supreme wisdom. This may appear so at the first glance, I confess, but if you examine the thing more

closely, it evidently appears from the things which have been alleged, that the contrary should be affirmed; that is, that all things and consequently souls attain to the highest degree of perfection possible. And in truth it is not proper to judge before having examined, as the jurisconsults say, the whole law. We know only a very small part of the eternity which extends into immensity; for the memory of the few thousands of years which history transmits to us are indeed a very little thing. And yet from an experience so short we dare to judge of the immense and of the eternal, like men who, born and brought up in a prison, or, if you prefer in the subterranean salt mines of the Sarmatae, think that there is no other light in the world than the lamp whose feeble gleam hardly suffices to direct their steps. Let us look at a very beautiful picture, and let us cover it in such a way as to see only a very small part of it, what else will appear in it however closely we may examine it and however near we may approach to it, except a certain confused mass of colors without choice and without art? And yet when we remove the covering and regard it from the proper point of view we will see that what appeared thrown on the canvas at haphazard has been executed with the greatest art by the author of the work. What the eyes discover in the picture, the ears discover in music. The most illustrious composers often introduce discords into their harmonies in order to excite and pique, so to speak, the listener, who, anxious as to the outcome, is all the more pleased when soon all things are restored to order. Just as we rejoice to have passed through slight dangers and experienced small ills, whether because of a feeling of egotism, or because we find pleasure in the frightful images which tight-rope dances or leapings between swords (*sauts périlleux*) present; so we partly loose laughing children, pretending to throw them far away from us, like the ape which, having taken Christian, king of the Danes, while still an infant wrapped in swaddling clothes, carried him to the top of the roof, and when everybody was frightened brought him back laughing, safe and sound to his cradle. According to the same principle, it is insipid always to eat sweetmeats; we must mingle with them sharp, acid and even bitter things, which excite the taste. He who has not tasted bitter things has not merited sweet things and even will not appreciate them. It is the law even of joy that pleasure be not uniform, for it engenders disgust, renders us stupid and not joyous.

As to what we said, that a part may be disturbed without prejudice to the general harmony, it must not be understood as meaning that no account is made of the parts, or that it suffices that the entire world be perfect in measure, although it might happen that the human race should be unhappy, and that there should be in the universe no regard for justice, no heed taken of our lot, as some think who do not judge rightly enough of the whole of things. For it must be known that as in a well-constituted republic as much care as possible is taken of the good of the individual, so the universe cannot be perfect if individual interests are not protected as much as the universal harmony will permit. And here a better law could not be established than the very law of justice which wills that each one participate in the perfection of the universe and in a happiness of his own proportioned to his own virtue and to the good will he entertains toward the common good, by which that which we call the charity and love of God is fulfilled, in which alone, according to the judgment of the wisest theologians, the force and power of the Christian religion itself consists. And it ought not appear astonishing that so large a part should be given to souls in the universe since they reflect the most faithful image of the supreme Author, and hold to him not only the relation of machine to artificer, but also that of citizen to prince; and they are to continue as long as the universe itself; and in a manner they express and concentrate the whole in themselves so that it can be said that souls are whole parts.

As regards especially the afflictions of good people, we must hold for certain that there results for them a greater good, and this is not only theologically but physically true. So grain cast into the ground suffers before producing its fruit. And we may affirm, generally, that afflictions, temporarily evil, are in effect good, since they are short cuts to greater perfections. So in physics, liquors which ferment slowly take more time also to improve; whereas those the agitation of which is greater, reject certain parts with more force and are more promptly improved.

And we might say of this that it is retreating in order the better to leap forward (*qu'on recède, pour mieux sauter*).

We should therefore regard these considerations not merely as agreeable and consoling, but also as most true. And, in general, I feel that there is nothing truer than happiness, and nothing happier nor sweeter than truth.

XVIII.

Reply to Reflections, found in the "*Journal des Savans*" of this year, relating to the consequences of certain passages of the Philosophy of Descartes. 1697.

[From the French.]

I am accused of *wishing to establish my reputation on the ruins of that of Descartes.* I have a right to complain of this. Very far from wishing to ruin the reputation of this great man, I find that his real merit is not sufficiently known, because what is most excellent in him is not enough considered and imitated. Men fasten on the weakest passages because these are most easily understood by those who are not willing to give themselves the trouble of thinking profoundly and who yet would like to understand the foundation of things. This is why, to my great regret, his partisans add almost nothing to his discoveries, and this is the usual effect of the sectarian spirit in philosophy. As all my views are intent only upon the public good, I have said something from time to time to arouse them, well knowing that their penetration would lead them very far, if they did not believe that their master had done enough. I have always declared that I esteem Descartes exceedingly; there are few who approach him in genius. I know but Archimides, Copernicus, Galileo, Kepler, Jung, Huygens, Newton, and a few others of such force; to whom Pythagoras, Democritus, Plato, Aristotle, Suisset, Cardan, Gilbert, Verulam, Campanella, Harvey, Pascal, and some others might be added. It is nevertheless true that Descartes has made use of artifice in order to profit by the discoveries of others, without wishing to appear indebted to them. He treated some excellent men in an unjust and unworthy way when they offended him, and he had an unbridled ambition to set himself up as a party chief. But this does not diminish the beauty of his thoughts. Far from approving those who despise him and who repay merit with ingratitude, it is this that I blame principally in Descartes, and still more in several of his partisans, whose misunderstood attachment for a single author nourishes prejudice and hinders them from profiting by the light

of so many others. I am accustomed to say that *the Cartesian philosophy is as it were the ante-chamber of the truth*, and that it is difficult to penetrate far beyond without having passed through this; but one deprives himself of the true knowledge of the heart of things if he stops there.

As for the little of reputation which I am honored by having accorded me, I have not acquired it in refuting Descartes; I have no need of that means; law, history and letters contributed to it before I had thought of mathematics. And if our new analysis, the calculus of which I have propounded, surpasses that of Descartes as much and more than his surpassed preceding methods, his remains none the less very worthy of esteem, although it has been necessary for the progress of science to disabuse those who think it suffices for everything; which cannot better be done than by proposing to them problems, beautiful and attractive, and, for those who know their method, even simple, but which not one of the Cartesian analysts has been able to solve.

. . . . . .

. . . . . .

Let us come now to the heart of our dispute. I am not the first who has blamed Descartes for having rejected the search for final causes. Besides the Rev. Father Malebranche, the late Mr. Boyle did so with much zeal and solidity; not to speak of numerous other grave, moderate and well-disposed authors, men who otherwise make much of Descartes. The reply is here made that he banished final causes from physics, and that he was right in so doing, but that he would have been wrong if he had banished them from ethics: *For the whole good and the whole evil of our free actions depends upon their end.* This reply is surprising. The question is not concerning our free actions, but concerning God and his wisdom, which appears among the things which Descartes ought not to have neglected. And the reply, far from excusing him, would charge, if it were true, that according to him final causes belong only to our free actions. But I suppose that this is not the view of the author of the *Reflections*, nor that of Descartes. Nevertheless, his silence might be prejudicial to his intention. He did not wish to avail himself of this means of proving the existence of God; he may be excused on this point, although many have blamed him for it; but he has not done well in other-

wise everywhere passing by so important a point, which ought to have been employed in some passages of his *Principles of Philosophy*. If God is the author of things and if he is sovereignly wise, one could not very well reason as to the structure of the universe without making considerations of his wisdom enter therein, just as one could not well reason concerning a building without entering into the designs of the architect. I have adduced elsewhere an excellent passage from the *Phaedo* of Plato (which is the dialogue on the death of Socrates), where the philosopher Anaximander, who had posited two principles, an intelligent mind and matter, is blamed for not having employed this intelligence or this wisdom in the progress of his work, having contented himself with the figures and motions of matter; and this is exactly the case with our too materialistic modern philosophers.

But, it is said, in physics we do not ask *why* things are but *how* they are. I reply that both questions are there asked. Often we can better judge of the means by the end. Besides to explain a machine we could not do better than to state its design and to show how all its parts conduce thereto. This may even be useful in finding the origin of the intention. I wish that this method were employed also in medicine. The animal body is a machine, at once hydraulic, pneumatic and pyrobolic, the design of which is to maintain a certain motion; and by showing what conduces to this design and what is injurious to it, physiology as well as therapeutics, would be understood. Thus it is seen that final causes are of service in physics, not only to make us admire the wisdom of God, which is the principal reason, but also for knowing things and for managing them. I have elsewhere shown that whereas we may still dispute as to the efficient cause of light, which Descartes, as the most intelligent now acknowledge, has not sufficiently well explained, yet the final cause suffices for divining the laws which it follows, for provided we imagine that nature had as its design the conducting of rays from a given point to another given point by the easiest path, we find all these laws admirably, by simply employing, as I have done in the *Acta Eruditorum* of Leipsic, some lines of analysis. . . . . Molineux thanked me for this in his *Dioptrics*, and he highly approved of the remark, which I made on the occasion, on the important use of final causes, which lead us to the consideration of Sovereign Wisdom, in showing us at the same time the laws of nature which are its consequence.

The author of the *Reflections* asks me to give the passage where Descartes says that matter receives successively all the forms of which it is capable. He has searched Articles 203 and 204 of the fourth part of his *Principles* for it. But it is found in Article 47 of the third part. I shall quote it in the words of the original Latin. The author remarks in the summary that the falsity of his suppositions regarding the origin of the world could not be injurious, and to prove it the better he adds: "Atque omnino parum refert quid hoc pacto supponatur, quia postea juxta leges naturae est mutandum. Et vix aliquid supponi potest, ex quo non idem effectus (quanquam fortasse operosius), per easdem naturae leges deduci possit. Cum earum ope materia formas omnes, quarum est capax, successive assumat, si formas istas ordine consideremus, tandem ad illam quae est hujusmodi poterimus devenire." From this it may be judged whether I have imposed upon this author, and whether he does not say positively not only that matter can take, but also that it does take effectively as well as successively, all the forms of which it is susceptible, and that it is thus of little importance what suppositions are made. There is much to be said against this reasoning. In order to sustain it, it would be necessary to suppose that the same state of the universe returns always precisely after a certain period; since otherwise, a state of the world being taken which is posterior in fact to another, this latter state could never be deduced from the former, even if matter should receive all the forms of which it is capable. But these periods involve other difficulties, so much so that thus all the infinite possibilities would have to occur in this finite, periodic interval; and all eternity could produce nothing new. To say, also, with Descartes, that he is at liberty to suppose almost anything he wishes, it would not suffice that each supposition or hypothesis should finally lead to our world; for it might be so distant and the passage from one to the other might be so long and so difficult that it would be impossible for the mind of man to follow it and to comprehend it. But the only proposition here in question is the one I have adduced, and the strange consequences of which I have noted: for if everything possible, and everything imaginable, however unworthy it be, some day comes to pass; if every fable or fiction has been or will become true history, there is naught but necessity, and no choice, no providence. And this consequence it is that the author

of the *Reflections* does not disown, he having simply undertaken to disprove the proposition itself, which he did not find in the *Principles* of its author.

Nevertheless I am unwilling to attack the religion and piety of Descartes, as is unjustly imputed to me. I protested the contrary in express terms, for a doctrine may be dangerous, without the one circulating it, or the one following it, remarking the fact or approving its consequences. Nevertheless it is well to make them known, to the end that we may be on our guard against them, forasmuch as it clearly appears that Spinoza and some others have drawn them. For there are minds disposed to seize upon the worst passages, and ingenious in deducing the most dangerous conclusions. I would not have spoken of Spinoza if I had thought that what I wrote would be published, from the fear that it would be believed that I wished to cast odium upon the Cartesians, knowing well that they have sometimes been wronged by mistaken zeal. Nevertheless, since there is a desire to criticize my words it has been necessary to show that I have advanced nothing groundlessly. As one of the best uses of true philosophy, and particularly of physics, is to nourish piety and to lead us to God, I am not ill-pleased with those who have given me this occasion for explaining myself in a way which may make good impressions on some one; although I could wish that it had been done without attributing to me a passion and partiality, from which, perhaps, few people are more removed than I. To express in few words the feeling which I have toward an author whose reputation I am wrongly accused of wishing to ruin (an enterprise which would be as unjust as it is impossible), I will say that he who does not acknowledge the eminent merit of Descartes is not very penetrating; but that he who acknowledges and esteems none but him and those who follow him, will never amount to much.

XIX.

On Nature in Itself; or, On the Force residing in Created Things, and their Actions. 1698.

[From the Latin.]

(1). I have recently received from the very illustrious John Christopher Sturm, a man especially meritorious for his work in mathematics and physics, the Apology which he published at Altorf in defence of his Dissertation, *De Idolo Naturae*, which Gunther Christopher Schelhammer, the eminent and beloved physician of Kiel, attacked in his book on nature. As I have formerly examined the same question, and as I have had by letters some discussions on this subject with the eminent author of the Dissertation, mention of which he made in a way very gratifying to me in recalling publicly some details of our correspondence in the first volume of his *Select Physics* (Vol. I, Sec. 1, Chap. 3, epilog. § v, pp. 119, 120), I have been thereby but the more disposed to give serious attention to such an important subject, judging it necessary that my view and the whole question should be a little more distinctly set forth from those principles which I have already often indicated. This apologetic dissertation seemed to me to offer an opportunity favorable to my design, because it was easy to see that the author had there treated in a few words the essential points of the question. For the rest I do not take sides between these illustrious men.

(2). Two points especially, it seems to me, are in question: first, in what consists the nature which we are accustomed to attribute to things, the commonly received attributes of which, according to the judgment of the celebrated Sturm, savor a little of paganism; next, whether there is in creatures any ἐνέργεια, a thing which he appears to deny. As for the first point, concerning nature in itself, if we examine what it is and what it is not, I admit indeed that there is no soul of the universe; I even admit that these marvels, which happen every day and of which we are wont to say with reason that the work of nature is the work of an intelligence, are not to be attributed to certain created intelligences endowed with a wisdom and virtue proportioned to so great a matter; but that

universal *nature* is, so to speak, the *handiwork of God*, and one so great that every natural machine (and this is the true but little observed difference between *nature* and *art*) is composed of really infinite organs, and consequently requires in the author and director infinite wisdom and power. This is why I hold the omniscient heat of Hippocrates and the soul-giving Cholco-goddess of Avicenna and the very wise plastic virtue of Scaliger and others and the hylarchic principle of Henry More, some of them impossible, others superfluous; and it is enough for me that the mechanism of things is constructed with so much wisdom that all these marvels come to pass through its very development, organized beings being evolved, I think, according to a preconceived plan. I am therefore of the opinion of the illustrious author when he rejects the figment of a certain created nature, whose wisdom forms and governs the mechanisms of bodies; but it does not hence follow, I believe, and reason does not admit, that all created, indwelling, active force must be rejected.

(3.) We have just spoken of what it is not; let us now examine more closely what this nature is which Aristotle was not wrong in calling the *principle of motion and of rest*, although this philosopher seems to me to take the word in too broad a meaning, and understand by it not only local motion or rest in a place, but in general *change* and *στάσις* or persistence. Whence, also, as I may say in passing, the definition which he gives of motion is truly obscure; it is, however, not so absurd as it seems to those who suppose that he meant to define only local motion. But let us return to the matter in hand. Robert Boyle, a man eminent and skilled in the accurate observation of nature, has written on nature in itself a little book, the thought of which, if I remember correctly, is summed up in this, that we ought to regard nature as being the very *mechanism* of bodies; which indeed may be proved *ὡς ἐν πλάτει*; but if he had examined the thing with more *ἀκριβεία* he would have distinguished in the mechanism itself the principles from their derivatives. So it does not suffice, in order to explain a clock, to say that it is moved in a mechanical manner, without distinguishing whether it receives this impulse from a weight or from a spring. I have already declared more than once (what I think will be of profit in hindering the abusing of mechanical explanations of material things, to the prejudice of piety, as if matter

could exist of itself and as if the mechanism had no need of any intelligence or of any spiritual substance) that the origin of the mechanism itself does not come merely from a material principle alone nor from mathematical reasons but from a certain higher principle, and, so to speak, metaphysical source.

(4.) One remarkable proof, among others, of this truth is that the *foundation of the laws of nature* must be made to consist not in this, that the same quantity of motion is preserved, as was commonly believed, but rather in this, that the *same quantity of active power*, still more (and I have discovered that this happens for an admirable reason), the *same quantity of moving action must be preserved*, the estimation of which must be very different from that which the Cartesians conceive under quantity of motion.

I have conferred on this subject, partly by letters, in part publicly, with two mathematicians of superior talent, and one of them embraced my opinion altogether; the other, after long and thorough examination, ended by renouncing all his objections and avowing frankly that he had not yet been able to find an answer to my demonstration. And I am all the more astonished to see that the illustrious man, in the edited portion of his *Select Physics*, in explaining the laws of motion, has admitted the common doctrine as if it did not permit of doubt (he has, however, recognized that it rests upon no demonstration but on a certain probability, and he has repeated it in this last dissertation, Chap. 3, § 2); but perhaps he wrote before my writings appeared and had not the time or the thought for revising his own, especially as he was persuaded that the laws of motion are arbitrary, which appears to me not at all according to reason. For I think that it is because of reasons determined by wisdom and order that God has been led to make the laws which we observe in nature; and hence it is evident, according to the remark which I formerly made on the occasion of an optical law and which the celebrated Molineux later highly approved in his *Dioptrics*, that final cause is not only useful to virtue and to piety in ethics and in natural theology, but that even in physics it serves to find and to discover hidden truths. So when the renowned Sturm, where he treats of final cause in his *Select Physics*, presented my doctrine among the hypotheses, I could have wished that he had sufficiently examined it in his criticism; for he would have found opportunity for saying in favor of the impor-

tance and richness of the argument many excellent things and such as are useful for piety.

(5.) But we must now examine what he says of the notion of nature in his apologetic dissertation, and what seems to us insufficient in it. He grants, Chap. IV, §§ 2, 3, and often elsewhere, that the movements which take place now are the result of the *eternal law* once decreed by God, which law he calls soon after volition and *command;* and that there is no need of a new command from God, of a new volition, and still less of a new effort or of a sort of laborious operation (§ 3); and he repels as an unjust imputation on the part of his opponent the thought that God moves things as a wood-cutter does his two-edged axe, or as a miller governs his mill by retaining the waters or by turning them loose on the wheel. But in truth, as indeed it seems to me, this explanation does not suffice. For I ask if this volition or this command, or, if you prefer, this divine law, decreed originally, attributed to things only an *extrinsic denomination;* or if, in forming them, it created in them some permanent impression, or as Schelhammer, remarkable as well for his judgment as for his experience, well calls it, an *indwelling law* (although it is most often unknown to the creatures in whom it resides), whence proceed all actions and all passions. The first appears to be the doctrine of the authors of the system of Occasional Causes, and especially of the very ingenious Malebranche; the latter is received (and as I believe rightly) as the most true.

(6.) And in truth since this past order does not exist at present, it can produce nothing now unless it then left after it some perduring effect, which now still continues and operates. And he who thinks otherwise renounces, if I judge rightly, all distinct explanation of things; and it can be said that anything is, by an equal title, the result of anything, if that which is absent in space and time can without intermedium operate here and now. Thus it is not sufficient to say that in creating things in the beginning God willed that they should observe a certain law in their progress, if his will is conceived to have been so inefficacious that things were not affected by it and no lasting effect was produced in them. And assuredly it is contrary to the notion of the divine power and will, which is pure and absolute, that God should will and nevertheless in willing produce or change nothing; that he is always

acting and never effecting; that in a word he *leaves no work* or ἀποτέλεσμα. Without doubt, if nothing was impressed on creatures by this divine word, "Let the earth bring forth, let the animals multiply;" if after it things were not affected otherwise than if no command intervened, it follows (since there must be between the cause and the effect a certain connection, either immediate or mediate), either that nothing takes place now conformably to this mandate or that this mandate effecting so much in the present must be always renewed in the future, a consequence which the learned author, with reason, repels. But if, on the contrary, the law decreed by God left some trace of itself impressed on things: if things were so formed by the mandate as to render them fit to accomplish the will of the legislator, then it must be admitted that a certain efficacy, form or force, such as we are accustomed to call by the name of nature, is impressed on things, whence proceeds the series of phenomena according to the prescription of the first command.

(7.) But this indwelling force may indeed be conceived distinctly but not explained by images; nor, certainly, ought it to be so explained any more than the nature of the soul, for force is one of those things which are not to be grasped by the imagination but by the understanding. Thus, when the author of the apologetic dissertation (Chap. 4, § 6) asks that the manner in which indwelling law operates in bodies ignorant of this law be explained to him by the imagination, I understand him to desire to have an explanation of it through the understanding; for otherwise, it might be believed that he demanded that sounds be painted and colors heard. Furthermore, if the difficulty of explaining things is sufficient for rejecting them, he therefore merits the imputation which he himself (Chap. 1, § 2) repels as unjust, of preferring to decide that everything is moved merely by a divine virtue rather than to admit, under the name of nature, something the nature of which is unknown to him. And certainly even Hobbes and others could claim with equal right that all things are corporeal, because they are persuaded that only bodies can be explained distinctly and by the imagination. But they themselves are justly refuted by the very fact that there is in things a power of acting which is not derived from imageable things, but merely to trace this to a mandate of God, which once given, in no wise affects things nor leaves

any effect after it, so far from clearing up the difficulty, is rather to renounce the rôle of the philosopher and to cut the Gordian knot with the sword. For the rest, a more distinct and correct explanation of active force than has up to this time been given, may be drawn from our *Dynamics*, in which we give an interpretation of the laws of nature and of motion, which is true and in accordance with things.

(8.) But if some defender of the new philosophy which introduces the inertia and torpor of things, goes so far as to take away from the commands of God all durable effect and all efficacy for the future, and has no scruples in requiring of God incessantly renewed efforts (that which Sturm prudently declares he is averse to), he himself may see how worthy he thinks this of God; moreover, he could not be excused unless he offered an explanation of why things themselves can last some time but the attributes of things which we understand under the name of nature cannot be lasting; why it may not be, furthermore, according to reason that just as the word *fiat* left something after it, namely, the persisting thing itself, so the not less admirable word of *blessing* has left also after it in things a certain fecundity or virtue of producing their acts and of operating, whence, if there is no obstacle, the operation results. That which I have explained elsewhere might be added to this if perchance it is not yet perfectly clear to all, that the very substance of things consists in their power of acting and suffering, whence it follows that not even durable things can be produced if a force of some duration cannot be imprinted upon them by the divine power. Thus it would follow that no created substance, no soul, would remain numerically the same; that nothing would be preserved by God, and consequently that all things would be only certain passing or evanescent modifications, and, so to speak, phantasms, of one permanent divine substance; and, what amounts to the same thing, that nature itself or the substance of all things, would be God; a pernicious doctrine, recently introduced into the world or renewed by a subtle but profane author. In truth, if corporeal things contained nothing but matter it would be quite true to say that they are in a flux and have nothing substantial, as the Platonists formerly very well recognized.

(9). Another question is whether we must say that creatures properly and truly act. This question is included in the first if we once

understand that the indwelling nature does not differ from the power of acting and suffering. For there cannot be action without the power of acting, and on the other hand that potency is worthless which can never be exercised. Since, however, action and potency are none the less different things, the first successive, the second lasting, let us consider the action. Here, I confess, I find no little difficulty in explaining the thought of the learned Sturm. For he denies that created things act properly and of themselves, and, nevertheless, soon after, while admitting that they act, he does not wish that the comparison of creatures to an ax moved by a wood-cutter be attributed to him. I cannot draw from this anything certain nor do I find explained with sufficient clearness to what extent he recedes from the received opinions, or what distinct notion he has conceived in his mind of action, which, as the debates of the metaphysicians attest, is far from being obvious and simple. As for me, as far as I seem to have grasped the notion of action, the doctrine generally received in philosophy, that *actions belong to subjects*, follows from it and is established by it; and I think that this principle is so true that it may be inverted; so that not only is everything which acts a particular substance, but also every particular substance acts without cessation, not even excepting body itself, in which no absolute rest is ever found.

(10). But let us now examine a little more attentively the opinion of those who take away from created things true and individual action; a thing which Robert Fludd, author of the *Philosophia Mosaica*, formerly did, and also now some Cartesians do who think that it is not at all the things which act, but indeed God, on occasion of things and according to the aptitude of things; and thus things are occasions not causes; they receive, but do not effect or produce. After Cordemoi, de La Forge and other Cartesians had proposed this doctrine, Malebranche, with his superior mind, lent it the lustre of his style; but no one, in my opinion, has presented solid proofs. Certainly if this doctrine is pushed to the point of suppressing even the *immanent actions* of substances (a view which the illustrious Sturm in his *Select Physics*, Bk. I, ch. iv, Epilo., § 11, p. 176, rightly rejects, and in this he gives proof of much circumspection), then nothing in the world appears to be more contrary to reason. In truth, who will question that the mind thinks and wills, and that many thoughts and volitions in us are elicited from

ourselves, and that we are endowed with spontaneity? This would be not only to deny human liberty and to make God the cause of evil, but also to contradict the testimony of our inmost experience and of our conscience; through which we feel that those things are ours, which, without any kind of reason, our adversaries would transfer to God. But if we attribute to our soul the indwelling power of producing immanent actions, or, what is the same thing, of acting immanently, then nothing hinders, on the contrary, it is conformable to reason, that this same power should reside in other animated beings or forms, or, if you prefer, in the nature of substances; but if some one should think that in the nature of things as known to us only our souls are active, or that all power of acting immanently, and so to speak *vitally*, is joined with intellect, such assertions certainly rest on no ground, and can be defended only in opposition to the truth. As to what is to be believed concerning the *transient actions of creatures*, that will be explained better in another place, and has, in part, already been explained by us elsewhere: that is to say, the *communication of substances* or of monads has its source not in influx but in a concord proceeding from divine preformation; each substance, at the same time that it follows the indwelling power and laws of its own nature, being accommodated to the others; and it is in this that the union of the soul and body consists.

(11). Moreover, that bodies are of themselves inert is true if it is rightly understood, that is, that what is assumed to be in some way at rest cannot set itself in motion or allow itself without resistance to be set in motion by another body; any more than it can of itself change the rate of velocity or the direction which it once has, or allow it easily and without resistance to be changed by another body. And thus it must be confessed that extension, or what is geometrical in body if taken simply, has nothing in it which can give rise to action and to movement; on the contrary, matter rather resists motion by a certain *natural inertia*, as Kepler has well called it, so that it is not indifferent to motion and rest, as is generally thought, but it needs in order to move an active force proportionate to its size. Wherefore I make the very notion of *materia prima*, or of mass, consist in this very passive force of resistance (involving impenetrability and something more), which is always the same in body and proportioned to its size; and hence, I

show that entirely different laws of motion follow than if there were in body and in matter itself only impenetrability together with extension; and that, as there is in matter a natural *inertia* opposed to *motion*, so in body itself, and what is more, in every substance, there is a natural *constancy* opposed to *change*. But this doctrine is not defended, but rather opposed, by those who deny action to things; for just as certain as it is that matter of itself does not begin motion, so certain is it (as very fine experiments on the motion communicated by a moving body show) that body retains of itself the impetus which it has once acquired, and that it is *stable* in its levity or makes an effort to persevere in that very series of changes which it has entered on. As these activities, or entelechies, cannot be modifications of primary matter or of *mass*, a thing essentially passive, as was recognized by the very judicious Sturm himself (as we shall see in the following paragraph), it may be inferred that there must be found in corporeal substance a *first entelechy* or πρῶτον δεκτικόν for activity; that is, a primitive motor force which being joined to extension (or what is purely geometrical) and to mass (or what is purely material) always indeed acts but nevertheless, in consequence of the meeting of bodies, is variously modified through effort and impetus. And it is this same substantial principle which is called *soul* in living beings, and *substantial form* in others; and so far as by its union with matter it constitutes a substance truly *one*, or one *per se*, it forms what I call a *monad*: since if these true and real unities are taken away only beings by aggregation will remain; nay, rather, it follows from this, that there will be no real entities in bodies. For although there are atoms of substance given, that is, our monads without parts, there are no atoms of mass, i. e., of the smallest extension, or ultimate elements, since the continuous cannot be formed of points. In short, no being is given which is the greatest in mass or infinite in extension, although there may always be some larger than others: but a being is given which is the greatest by *intension* of perfections or infinite in power.

(12). I see however that in this same apologetic dissertation, ch. IV, § 7 et seq., the celebrated Sturm has undertaken to attack by certain arguments the motor force residing in bodies. "I shall abundantly here prove," he says, "that corporeal substance is not even capable of any *actively* motor potency." But I do not

understand what a power not actively motor can be. Moreover, he says that he will employ two arguments, one drawn from the nature of matter and of body, the other from the nature of motion. The first amounts to this, that matter, in its nature and essentially, is a passive substance; and that thus it is no more possible to give it active force than it is for God to will that a stone, as long as it remains a stone, shall be living and rational, that is, not a stone; further, whatever qualities are posited in bodies are but modifications of matter, moreover (what I acknowledge is well said), a modification of a thing essentially passive cannot render this thing active. But it is easy to reply with the received and true philosophy that *matter* is to be understood as secondary or as primary; the secondary is a certain complete but not purely passive substance; the primary is purely passive but not complete, and consequently there must be added to it a soul, or form analogous to the soul, a primary ἐντελέχεια, that is, a certain effort or primitive power of acting, which is itself the indwelling law imprinted by divine decree. I do not think that such a view is repugnant to the illustrious and ingenious man who lately maintained that body is composed of matter and of spirit; provided that *spirit* is taken not for an intelligent thing (as in other cases is done) but for a soul or form analogous to the soul; not for a simple modification, but for something constituent, substantial and perduring, which I am accustomed to call *monad*, and which possesses a sort of perception and desire. Therefore this received doctrine, agreeing with the favorably explained dogma of the schoolmen, must be first refuted, in order that the argument of this illustrious man may have any weight. Whence also it is evident that we cannot admit, what he assumes, that whatever is in corporeal substance is but a modification of matter. For it is well known that according to received philosophy there are in the bodies of living beings souls which assuredly are not modifications. For although the illustrious man appears to maintain the contrary and to take away from the brutes all feeling, in the true meaning of the word, and soul, properly speaking, nevertheless, he cannot assume this opinion as the foundation of his demonstration until it itself has been proved. And I believe, on the contrary, that it is consistent neither with the order nor the beauty nor the reason of things, that this vital or immanently active principle should be only in a small part of matter, when

greater perfection demands that it be in all. Nor does aught hinder souls, or at least forms analogous to souls, from being everywhere, although the dominant, and hence intelligent, souls, like the human, cannot be everywhere.

(13). The second argument, which the illustrious Sturm draws from the nature of motion, does not appear to me to be necessarily conclusive. He says that *motion* is only the successive existence of the thing in different places. Let us grant this provisionally, although we are not at all satisfied with it, and although it expresses rather the result of motion that its so-called formal reason; nevertheless motor force is not thus excluded. For a body is not only at the actual moment of its motion in the place assigned it, but it has also a tendency or effort to change its place so that the succeeding state follows of itself from the present by the force of nature; otherwise at the actual moment, and hence at any moment, body A, which is moved by body B, would in no wise differ from a body at rest; and from the opinion of the illustrious man, were it contrary to ours on this point, it would follow that there would be no difference whatever in bodies, because in the fullness of a mass in itself uniform no other difference can be assumed than that which respects the motion. Finally, it would further follow that there would be absolutely no variation in bodies, and that they would remain always in the same state. For if any portion of matter does not differ from another equal to and like it (which the illustrious Sturm must admit, since he does away with active forces, impulses, and all other qualities and modifications, except existence in this place, which would be successively another and another); if moreover the state at one instant does not differ from the state at another instant except by the transposition of portions of matter, equal and similar, and at every point fitting to each other, it evidently follows that, on account of the perpetual substitution of indiscernible things, it will be absolutely impossible to distinguish the states in the world of bodies at different moments. In truth, it would only be an *extrinsic denomination* by which one part of matter would be distinguished from another, that is, by the future, namely, that it would be later in another and still another place; but for the present state, there is no difference; and not even from the future could a well founded difference be drawn, because we could even later never arrive at any true present differ-

ence, since by no mark can one place be distinguished from another place, nor (on the hypothesis of the perfect uniformity in matter itself) matter from other matter of the same place. In vain also would we after motion have resort to *figure*. In a mass perfectly similar, indistinguishable and full, there arises no figure, nor limit and distinction of various parts, except from the motion itself. If then motion does not contain any mark of distinction it will impart none to figure; and as everything which is substituted for that which was, is perfectly equivalent, no one, even were he omniscient, could grasp the least indication of change, and consequently everything will be just as if no change and no distinction occurred in bodies: and we could never in this way account for the diverse appearances which we perceive. And it would be as if we should imagine two perfect concentric spheres, perfectly similar in themselves and in all their parts, one of which should be enclosed in the other so that not the least aperture should be left: then, if we suppose that the inner sphere is either in motion or at rest, not even an angel, to say nothing more, will be able to perceive any difference between the states at different times, and will have no sign by which to distinguish whether the inner sphere is at rest or in motion and according to what law the motion is. Moreover, not even the boundary of the spheres can be defined, because of the want both of *aperture* and of difference; just as in this case motion cannot be noticed because of the one lack of *difference*. Whence it must be considered as certain (although those who have not sufficiently penetrated into these things have little noticed it) that such things are foreign to the nature and order of things, and that (what is among the number of my new and greater axioms) there is *nowhere any perfect similarity;* whence it follows also that we find in nature neither corpuscles of an extreme hardness, nor a fluid of an extreme tenuity, nor subtile matter universally diffused, nor ultimate elements, called by some by the name of primary or secondary. It is, I believe, because he had understood something of this, that Aristotle, more profound in my opinion than many think, judged that in addition to local change there was need of alteration, and that matter would remain invariable. Moreover, this dissimilarity or diversity of qualities, and hence this ἀλλοίωσις or alteration, which Aristotle did not sufficiently explain, comes from the diverse degrees and directions of efforts, and so from the modifications of

indwelling monads. We can understand by this that there must necessarily be posited in bodies something besides a uniform mass and its not untimely transportation. Certainly, those who hold to atoms and a vacuum diversify matter at least in some degree by making it here divisible, there indivisible, full in one place, porous in another. But for a long time now I have understood (by laying aside the prejudices of youth) that atoms together with vacuum must be rejected. The celebrated author adds that the existence of matter through diverse moments is to be attributed to the divine will; why not then, he says, attribute to the same its existence here and now? I reply, that this, like all other things in so far as they involve some perfection, must undoubtedly be attributed to God; but just as this universal first cause which preserves all things does not destroy, but rather produces, the natural permanence, or once granted perseverance in existence, of the thing which begins to exist; so it will not destroy but rather strengthen the natural efficacy, or perseverance in action once communicated, of the thing set in motion.

(14). Many other things are met with in this apologetic dissertation which present difficulties, as what is said chapter IV, § 11, concerning motion transmitted from one ball to another through several intermediaries, that the last ball is moved by the *same force* by which the first is moved, whereas, it seems to me, it is moved by an equivalent but not the same force; for (what may appear surprising), each ball repelled by the next impinging it is set in motion by its *own force*, viz., its elasticity. (I do not here discuss at all the cause of this elasticity, nor do I deny that it ought to be explained mechanically by the movement of an indwelling and unstable fluid). So also it will rightly seem surprising when he says, § 12, that a thing which cannot set itself in motion cannot of itself continue the motion. For it is evident rather that, as there is need of force to communicate motion, so, when the impulse is once given, so far from there being need of a new force to continue it there is rather need of a new force to stop it. For the question here is not of that preservation of motion by means of a universal cause necessary to things, which, as we have remarked, could not destroy the efficiency of things without taking away their existence.

(15). By this it will be again perceived that the doctrine of occasional causes defended by some (unless it be explained in such a

way as to admit of modifications which the illustrious Sturm has in part admitted and in part seems disposed to admit), is subject to dangerous consequences which are certainly not agreeable to its very learned defenders. For so far is it from augmenting the glory of God by doing away with the *idola* of nature, that on the contrary, by resolving all created things into simple modifications of a single divine substance, it seems, with Spinoza, to make of God the very nature of things; since that which does not act, that which lacks active force, that which is deprived of distinctive mark, and finally, of all reason and ground of permanence, can in no wise be a substance. I am thoroughly persuaded that the illustrious Sturm, a man remarkable for his piety and learning, is very far removed from these monstrosities. Thus there is no doubt but that he will either have to show clearly that there remains in things some substance or even some variation, without prejudice to his doctrine, or he will have to accept the truth.

(16). I have many reasons to suspect that I have not sufficiently grasped his meaning, nor he mine. He has somewhere admitted to me that a certain portion of divine power (that is, as I think, an expression, imitation, nearest effect; for the divine force itself can certainly not be divided into parts) can and even in a way must be regarded as possessed by and attributed to things. What he has transmitted to me and what he has repeated in his *Select Physics*, may be seen in the passage which I quoted at the beginning of this essay. If this be interpreted (as the terms seem to imply) in the sense in which we speak of the soul as a portion of the divine breath, then there is no longer any controversy between us. But what prevents me from affirming that such is his meaning, is that nowhere else do I see him propounding anything like it, nor advancing any deductions from it. I notice on the contrary, that his general views are little in harmony with this opinion, and that his apologetic dissertation goes into everything else. When indeed my views concerning indwelling force were first published in the month of March, 1694, in the *Acta Eruditorum* of Leipzig (views which my *Essay on Dynamics* published in the same in April, 1695, farther developed), he addressed to me by letter certain objections; but after having received my reply, he decided in a very friendly way that the only difference between us was in the manner of expressing ourselves. When I, remarking this, had brought some other things

to his attention, he turning about declared there were many differences between us, which I recognized: and finally, these having been removed, he wrote me anew that there was no difference between us except in terms, a thing very agreeable to me. I have, therefore, wished, on the occasion of the recent apologetic dissertation, to so explain the matter that finally the opinion of each one of us and the truth of the same may the more easily be established. For the illustrious author possesses, moreover, such rare penetration and clearness of exposition, that I hope that no little light will be thrown by his zeal on this great subject. And consequently this work of mine will not be useless because it furnishes him the opportunity, with his wonted talent and force of judgment, to examine and to explain some things of importance in the present subject, which have up to this time been omitted by authors and by me. But these things will be supplemented, if I am not mistaken, by new, more profound, and more comprehensive principles, whence perhaps may come, some day, a reconstructed and amended system of philosophy midway between the formal and the material (and properly uniting and preserving both).

XX.

Ethical Definitions. 1697–1698.

[From the French.]

As to charity or disinterested love, on which I see embarrassing disputes have arisen, I think that one could not extricate one's self better than by giving a true definition of love. I believe that in the preface to the work [*Codex Diplomaticus Juris Gentium*] which is known to you, sir, I have formerly so done in noting the source of justice. For Justice is fundamentally nothing else than charity conformed to wisdom. Charity is universal benevolence. Benevolence is a disposition or inclination to love and it has the same relation to love that habit has to act. And Love is this act or active state of the soul which makes us find our pleasure in the happiness or satisfaction of others. This definition, as I have since noted, is capable of solving the enigma of disinterested love, and of distinguishing it from the bonds of interest or debauchery. I remember that in a conversation, which I had several years ago with the Count ——— and other friends, in which human love alone was spoken of, this difficulty was agitated, and my solution was found satisfactory. When one loves a person sincerely one does not seek one's own advantage or a pleasure severed from that of the beloved person, but one seeks one's pleasure in the contentment and in the felicity of this person. And if this felicity did not please in itself, but merely because of an advantage resulting therefrom to us, this would no longer be pure and sincere love. It must be then that pleasure is immediately found in this felicity, and that grief is found in the unhappiness of the beloved person. For whatever produces pleasure immediately through itself is also desired for itself, as constituting (at least in part) the end of our wishes, and as something which enters into our own felicity and gives us satisfaction.

This serves to reconcile two truths which appear incompatible; for we do all for our own good, and it is impossible for us to have other feelings whatever we may say. Nevertheless we do not yet love altogether purely, when we seek the good of the beloved object not for itself and because it itself pleases us, but because of an

advantage which we foresee from it. But it is apparent from the notion of love which we have just given that we seek at the same time our good for ourselves and the good of the beloved object for it itself, when the good of this object is immediately, finally (*ultimato*) and through itself our end, our pleasure and our good; as happens in regard to all the things wished for because they are pleasing in themselves, and are consequently good of themselves, even if one should have no regard to consequences; these are ends and not means.

Now divine love is infinitely above the loves of creatures, for other objects worthy of being loved constitute in fact part of our contentment or our happiness, in so far as their perfection touches us, while on the other hand the felicity of God does not compose a part of our happiness, but the whole. He is its source and not its accessory, and since the pleasures of lovable earthly objects can injure by their consequences, only the pleasure taken in the enjoyment of the divine perfections is surely and absolutely good, without danger or excess being possible.

These considerations show in what the true disinterestedness of pure love consists which cannot be severed from our own contentment and felicity, as M. de la Trappe has well remarked, because our true felicity embraces essentially the knowledge of the felicity of God and of the divine perfections, that is to say, the love of God. And consequently it is impossible to prefer one to the other by a thought founded in distinct notions. And to wish to sever one's self from one's self and from one's own good is to play with words, or if you wish to go to the effects, it is to fall into an extravagant quietism, it is to desire a stupid, or rather affected and simulated inaction in which under pretext of resignation and of the annihilation of the soul swallowed up in God, one may go to libertinism in practice, or at least to a hidden speculative atheism, such as that of Averroes and of others more ancient who taught that our soul finally lost itself in the universal spirit, and that this is perfect union with God.—*Extract from a letter to Nicaise, 1697.*

The error concerning pure love appears to be a misunderstanding, which as I have already said to you, sir, comes perhaps from not paying sufficient attention to forming definitions of terms.

To LOVE truly and disinterestedly is nothing else than to be led to find pleasure in the perfections or in the felicity of the object, and consequently to experience grief in what may be contrary to these perfections. This love has properly for its object substances susceptible of felicity; but some resemblance of this is found as regards objects which have perfections without being aware of it, as for example, a beautiful picture. He who finds pleasure in contemplating it and would find pain in seeing it ruined even if it should belong to another, would love it, so to speak, with a disinterested love. This could not be said of another who should merely have in view gain in selling it or the winning of applause by showing it, without for the rest caring whether or not it were ruined when it should no longer belong to him. This shows that pleasure and action cannot be taken away from love without destroying it, and that M. des Preaux in the beautiful verses which you sent me, was right both in recommending the importance of the divine love and in opposing a love which is chimerical and without effect. I have explained my definition in the preface of my *Codex Diplomaticus Juris Gentium* (published before these new disputes arose), because I had need of it in order to give the definition of JUSTICE, which in my opinion is nothing but charity regulated according to wisdom. Now CHARITY being a universal benevolence, and BENEVOLENCE being a habit of loving, it was necessary to define what it is to love. And since to LOVE is to have a feeling which makes us find pleasure in what conduces to the happiness of the beloved object, and since WISDOM (which makes the rule of justice) is nothing but the science of happiness, I showed by this analysis that happiness is the basis of justice, and that those who would give the true elements of jurisprudence, which I do not find laid down as they should be, ought to begin by establishing the science of happiness, which does not yet appear well determined, although books on Ethics are full of discourses on blessedness or the sovereign good.

As PLEASURE, which is nothing but the feeling of rare perfection, is one of the principal points of HAPPINESS, which in turn consists in a lasting condition of possession of what is necessary in order to taste pleasure, it were to be desired that the science of pleasures which the late M. Lautin meditated had been completed.—*Extract from a letter to Nicaisse, 1698.*

[The following Ethical Definitions, translated from the Latin, are undated.]

Justice is the charity of the wise.

Charity is general benevolence.

Benevolence is the habit of love.

To love anyone is to delight in his happiness.

Wisdom is the science of happiness.

Happiness is durable joy.

Joy is a state of pleasure.

Pleasure or delight is a sense of perfection, that is, a sense of something which helps or which sustains any power.

He is perfected whose power is augmented or helped.

Demonstrate this Hypothesis elsewhere:

The world is governed by the wisest and most powerful of monarchs, whom we call God.

Propositions.

The end or aim of God is his own joy or love of himself.

God created creatures, and especially those endowed with mind, for his own glory or from love of himself.

God created all things in accordance with the greatest harmony or beauty possible.

God loves all.

God bestows on all as much as is possible.

Neither hatred, nor wrath, nor sadness, nor envy, belong to God.

God loves to be loved or those loving him.

God loves souls in proportion to the perfection which he has given to each of them.

The perfection of the universe, or harmony of things, does not allow all minds to be equally perfect.

The question why God has given to this mind more perfection than to another, is among senseless questions, as if you should ask whether the foot is too large or the shoe pinching the foot is too small. And this is a mystery, ignorance of which has obscured the whole doctrine of the predestination and justice of God.

He who does not obey God is not the friend of God.

He who obeys God from fear is not yet the friend of God.

He who loves God above all things is at length the friend of God.

He who does not seek the common good does not obey God.

He who does not seek the glory of God does not obey God.

He who at the same time seeks the glory of God and the common good obeys God.

He who does not in his acts recognize God does not sufficiently love God.

He who is displeased by some things in the acts of God does not think God perfect.

He who thinks God does some things from absolute good pleasure, having no reason, or from irrational or indifferent liberty, does not think God perfect.

He who thinks God acts in the best possible way acknowledges that God is perfect.

Whoever does not delight in the contemplation of the divine perfection does not love God.

All creatures serve the felicity or glory of God in the degree of their perfection.

Whoever against his will serves the felicity of God does not love God.

Whoever places his own felicity in relation with the divine felicity, loves himself and loves finally God.

He who loves God endeavors to learn his will.

He who loves God obeys God's will.

He who loves God loves all.

Every wise man endeavors to do good to all.

Every wise man does good to many.

Every wise man is a friend of God.

The wiser one is the happier he is.

Every wise man is just.

Every just man is happy

XXI.

On the Cartesian Demonstration of the Existence of God. 1700–1.

[From the French.]

In truth metaphysics is natural theology, and the same God who is the source of all good is also the principle of all knowledge. This is because the idea of God embraces that of absolute being, that is to say, what is simple in our thoughts, from which all that we think takes its origin. Descartes had not considered the matter from this side; he gives two ways of proving the existence of God: the *first* is, that there is in us an idea of God, since we undoubtedly think of God and since we cannot think of anything without having the idea of it. Now if we have an idea of God and if it is a true one, that is, if it is of an infinite being and if it represents it faithfully, it cannot be caused by anything less, and consequently God himself must be its cause. He must therefore exist. The *other* argument is still shorter. It is that God is a being which possesses all perfections and consequently possesses *existence* which is in the number of perfections; hence he exists. It must be confessed that these arguments are a little suspicious because they advance too quickly and do violence to us without enlightening us; whereas true demonstrations are wont to fill the mind with some solid nourishment. However it is difficult to find the knot of the matter, and I see that a number of able men who have made objection to Descartes have passed this by.

Some have believed that there is no idea of God because he is not subject to the imagination, supposing that *idea* and *image* are the same thing. I am not of their opinion, and I well know that there is an idea of *thought* and of *existence* and of similar things of which there is no image. For we think of something and when we remark what made us recognize it, this, so far as it is in our soul, is the idea of the thing. This is why there is also an idea of what is not material or imaginable.

Others admit that there is an idea of God, and that this idea embraces all perfections, but they cannot understand how existence follows from it: be it because they do not admit that existence is

of the number of perfections, or because they do not see how a simple idea or thought can imply existence outside of us. For myself I well believe that he who has acknowledged this idea of God and who fully sees that existence is a perfection, ought to avow that this perfection belongs to God. In fact I do not doubt the idea of God any more than his existence, on the contrary, I claim that I have a demonstration of it; but I would not that we flatter ourselves and persuade ourselves that we could succeed in so great a matter at so little cost. Paralogisms are dangerous in this matter; when they are not successful they rebound upon ourselves and strengthen the opposite party. I say then that we must prove with all imaginable accuracy that there is an idea of an all-perfect being, that is to say of God. It is true that the objections of those who think that they can prove the contrary because there is no image of God are as I have just shown worthless; but it must also be confessed that the proof which Descartes offers for establishing the idea of God is imperfect. How, he will say, can we speak of God without thinking of him. And could we think of God without having the idea of him? Yes, undoubtedly, we sometimes think of impossible things, and this has even been demonstrated; for example, Descartes held that the quadrature of the circle is impossible, and yet we do not cease to think of it and to draw consequences as to what would happen if it were possible. Motion *of ultimate swiftness* is impossible in any body whatever, for if it were supposed in a circle, for example, another concentric circle, surrounding the first and attached firmly to it, would be moved with a velocity still greater than the first, which consequently is not of the ultimate degree, contrary to what we have supposed. All this to the contrary notwithstanding, we think of this ultimate swiftness which has no idea since it is impossible. So the *greatest of all circles* is an impossible thing, and a number made up of *all possible units* is no less so: there is proof of it. And nevertheless we think of all this. This is why there is certainly room to doubt whether the idea of the *greatest of all stars* is to be trusted and whether it does not involve some contradiction; for I well understand, for example, the nature of motion and of swiftness, and what greatest is. But for all that I do not understand whether all this is compatible and whether there is a way of joining all this and making therefrom an idea of the greatest swiftness of which

motion is capable. So although I know what star is, and what largest and most perfect are, nevertheless, I do not yet know whether there is not a hidden contradiction in joining all these together, as there is in fact in the other examples mentioned. That is to say, in a word, I do not know for all this whether such a star is possible; for if it were not there would be no idea of it. However, I confess, that God in this respect has a great advantage over all other things. For it is sufficient to prove that he is *possible* to prove that he exists, a thing not encountered anywhere else that I know of. Furthermore I infer from this that there is a presumption that God exists for there is always a presumption on the side of possibility; that is to say everything is held to be possible until its impossibility is proved. There is therefore also a presumption that God is possible, that is, that he exists, since in him existence is a consequence of the possibility. This may suffice for practical life but it is not sufficient for a demonstration. I have disputed much on this point with several Cartesians, but, finally, I have gotten some of the more able to frankly confess, after having understood the force of my arguments, that this possibility was still to be demonstrated. There are even some who after being challenged by me have undertaken to demonstrate this but they have not yet completed it.—*Extract from an undated letter to (probably) the Grand Duchess Sophia.*

I have not yet seen the work published at Basle in the year 1699, entitled *Judicium de argumento Cartesii pro existentia Dei petito ab ejus idea;* but having formerly casually examined the same argument in an essay *On Knowledge, Truth and Ideas*, inserted in the *Acta* of Leipzig, in the year 1684, I am curious to read what an able man says in the *Histoire des Ouvrages des Savans*, May, 1700, in favor of the arguments of Descartes and against the Latin work published at Basle. And I will say to you, sir, that I hold a position midway between the work and the reply. The author of the work believes that the argument is a sophism, the author of the reply considers it a demonstration, and I myself believe that it is an imperfect argument which tacitly takes for granted a proposition the proof of which, if added, would complete the demonstration. Thus the argument is not to be despised; it is at least a good beginning. *Est aliquid prodire tenus, si non datur ultra.*

Geometricians, who are the true masters of the art of reasoning, have seen that in order that demonstrations drawn from definitions may be good, it is necessary to prove, or at least postulate, that the notion embraced in the definition is possible. This is why Euclid placed among his *postulata*, that the circle is something possible, in asking that a circle, the center and radius of which are given, be described. The same precaution holds good in every sort of reasoning, and particularly in the argument of Anselm, archbishop of Canterbury (in *Liber contra insipientem*), quoted and examined by St. Thomas and other scholastics, and renewed by Descartes, which proves that God, being the greatest or most perfect being, embraces that perfection called *existence*, and that consequently he exists. To this it may be said that the reasoning is sound, supposing that the being sovereignly perfect or which embraces all perfections, is possible; and that it is the privilege of the divine nature (*ens a se*) that its essence comprises existence, that is, that it exists provided it is possible. And even omitting all mention of perfection it may be said *that if necessary being is possible it exists.* This is undoubtedly the most beautiful and the most important of modal propositions, because it furnishes a passage from power to act, and it is solely here that *posse ad esse valet consequentia.* Also herein is found the principle of existences.

The author of the work opposes an example to Descartes, in reasoning as he does and reaching a false conclusion, for he says that existence is contained in the idea of a very perfect body (or one which comprises all perfection), hence such a body exists. To this, in my opinion, reply must be made that the idea of a very perfect being in this sense is impossible, for a body being limited by its essence cannot include all perfections. The work and the reply give themselves up a little too much to the terms and distinctions of real (or formal) and objective, essence and existence, whither I do not think it necessary to follow them. It is sufficient to remark that the author of the work having proposed to himself the reasoning of those who say *that God must necessarily exist because it is not impossible that God be*, has touched the essential point and has replied by no means badly that it does not follow that a thing is possible because we do not see its impossibility, our knowledge being limited. But this might have led him to think that the argument is not a sophism and that those who have proposed it

have sinned only in concealing what they presuppose, instead of following the example of the geometricians, who have penetration and sincerity enough to see and expressly indicate the axioms and postulates of which they have need and which they presuppose.

The author of the reply, as far as I can understand him, does not enter sufficiently into this; he has good reason, p. 211, for rejecting this limitation: *that wholly perfect being includes existence if it be supposed that there is a wholly perfect being*, that is to say an actual. But if we understand it thus: *if it be supposed that there is a wholly perfect being possible or among essences*, the limitation is good. He is right in saying that it is not permissible to doubt things which are known to us under the pretext that our knowledge is limited. But this does not appear to be the meaning of the author of the work. I have already remarked in my essay, before mentioned, that the true mark of perfectly distinct knowledge is that the possibility of the notion in question can be proved *a priori*. Thus he is fundamentally wrong here in attributing to himself a clear and distinct notion when he cannot verify it by the mark which is essential to it. The example of the proposition *that two and two are four* is not applicable here because it can be demonstrated by definitions the possibility of which is recognized. —*Extract from a letter to* ——, 1700.

I have already elsewhere given my opinion concerning St. Anselm's demonstration of the existence of God, renewed by Descartes; the substance of which is that that which embraces in its idea all perfections, or the greatest of all possible beings, comprehends also in its essence existence, since existence is in the number of perfections, and otherwise something could be added to that which is perfect. I hold a medium between those who take this reasoning for a sophism and the opinion of Reverend Father Lami, explained here, who considers it a complete demonstration. I admit then that it is a demonstration, but imperfect, which demands or supposes a truth which deserves to be further demonstrated. For it is tacitly supposed that God, or the Perfect Being, is possible. If this point were again demonstrated, as it should be, it could be said that the existence of God was demonstrated geometrically *a priori*. And this shows what I have

already said, that we cannot reason perfectly on ideas except by knowing their possibility; to which geometricians have paid attention, but the Cartesians not sufficiently. However it can be said that this demonstration is none the less of importance, and so to speak, presumptive. For every being must be held possible until its impossibility is proved. I doubt however whether Reverend Father Lami was right in saying that it was adopted by the School. For the author of the marginal note remarks here very justly that St. Thomas had rejected it.

However this may be, a demonstration still more simple might be formed, not mentioning the perfections at all, so as not to be stopped by those who should venture to deny that all perfections are compatible, and consequently that the idea in question is possible. For by simply saying that God is a being of itself or primative, *ens a se*, that is, which exists by its essence it is easy to conclude from this definition that such a being, if it is possible, exists; or rather, this conclusion is a corollary which is derived immediately from the definition, and hardly differs from it. For the essence of the thing being only that which makes its possibility in particular, it is very clear that to exist by its essence, is to exist by its possibility. And if the *being of itself* were defined in terms still nearer, by saying that it is the *being which must exist because it is possible*, it is manifest that all which could be said against the existence of such a being, would be to deny its possibility.

On this subject we might again make a modal proposition, which would be one of the best fruits of all logic: namely, that *if necessary being is possible, it exists.* For *necessary being* and *being by its essence* are only one and the same thing. Thus the reasoning taken with this bias appears to have solidity; and those who will have it that from mere notions, ideas, definitions or possible essences, actual existence can never be inferred, in truth fall into what I have just said, namely, they deny the possibility of being of itself. But it is well to notice that this bias itself serves to show that they are wrong, and fills up finally the gap in the demonstration. For if *being of itself* is impossible, all *beings by others* are so also; since they exist ultimately only through being of itself; thus nothing could exist. This reasoning leads us to another important modal proposition, equal to the preceding, and which joined with it, completes the demonstration. It might be

expressed thus: *If necessary being is not, there is no being possible.* It seems that this demonstration has not been carried so far up to this time. However I have also labored elsewhere to prove that the perfect being is possible.

I designed, sir, merely to write you in few words some trifling reflections on the memoirs which you sent me; but the variety of matters, the heat of meditation and the pleasure which I have taken in the generous design of the Prince who is the protector of this work, have carried me on. Pardon me for having been so lengthy, and I am, etc.—*Extract from a letter to the editor of the Journal de Trevoux.* 1701.

XXII.

Considerations on the Doctrine of a Universal Spirit. 1702.

Many ingenious persons have believed, and believe now, that there is but one spirit, which is universal and which animates all the universe and all its parts, each one in accordance with its structure and organs, just as the same breath of wind makes the various pipes of an organ give forth different sounds. And that thus when an animal has its organs well placed, it produces there the effect of an individual soul, but when the organs are spoiled, this individual soul again becomes nothingness, or returns, so to speak, into the ocean of the universal spirit.

Aristotle has seemed to many to hold a like opinion, which Averroes, a celebrated Arabian philosopher, has renewed. He believed that there was in us an *intellectus agens* or active understanding, and also an *intellectus patiens* or passive understanding: that the former, coming from without, was eternal and universal for all, but that the passive understanding was peculiar to each, and took its departure at the death of man. In the last two or three centuries, this has been the doctrine of some Peripatetics, as of Pomponatius, Cŏntarenus and others; and traces of it are to be recognized in the late M. Naudé, as his letters and the Naudæana, which have been lately published, show. They taught this in secret to their most intimate and best qualified disciples, while in public they had the cleverness to say that this doctrine was in reality true according to philosophy, by which they understood that of Aristotle *par excellence*, but that it was false according to faith. Hence have finally arisen the disputes over double truth which the last Lateran Council condemned.

I have been told that Queen Christina had a decided leaning toward this opinion, and as M. Naudé, who was her librarian, was imbued with it, he probably communicated to her what he knew of the secret views of the celebrated philosophers with whom he had had intercourse in Italy. Spinoza, who admits only one substance, is not far removed from the doctrine of a single, universal spirit, and even the New Cartesians, who claim that God alone acts, establish it likewise without noticing it. Apparently Molinos and several

other New Quietists, among others, a certain Joannes Angelus Silesius, who wrote before Molinos and some of whose works have recently been reprinted, and even Weigelius before them, embraced this opinion of the sabbath or rest of souls in God. This is why they believed that the cessation of particular functions was the highest state of perfection.

It is true that the Peripatetic philosophers did not make this spirit quite universal, for besides the intelligences, which according to them, animated the stars, they had an intelligence for this world here below; and this intelligence performed the part of the active understanding in the souls of men. They were led to this doctrine of an immortal soul common to all men, by false reasoning. For they took for granted that actual infinite multiplicity is impossible and that thus it was not possible that there should be an infinite number of souls, but that there *must* be nevertheless, if individual souls existed. For the world being, according to them, eternal, and the human race also, and new souls always being born, if these all continued to exist, there would now be an actual infinity. This reasoning passed among them for a proof. But it was full of false suppositions. For neither the impossibility of actual infinitude, nor that the human race has existed eternally, nor the generation of new souls, would be admitted, since the Platonists teach the preëxistence of souls, and the Pythagoreans teach metempsychosis, and claim that a certain determined number of souls remains ever and undergoes changes.

The doctrine of a universal spirit is good in itself, for all those who teach it admit in effect the existence of the divinity, whether they believe that this universal spirit is supreme—for in this case they hold that it is God himself—, or whether they believe with the Cabalists that God created it. This latter was also the opinion of Henry More, an Englishman, and of certain other modern philosophers, and especially of certain chemists who believed in a universal Archæus or world-spirit; and some have maintained that it was this spirit of the Lord which, as the beginning of *Genesis* says, "moved upon the waters."

But when they go so far as to say that this universal spirit is the only spirit and that there are no souls or individual spirits, or at least that these individual souls cease to exist, I believe that they pass the limits of reason, and advance, without grounds, a doctrine

of which they have not even a distinct notion. Let us examine a little the apparent reasons upon which they rest this doctrine which destroys the immortality of souls and degrades the human race, or rather, all living creatures, from that rank which belongs to them and which has commonly been attributed to them. For it seems to me that an opinion of so much importance ought to be proved, and that it is not sufficient to have imagined a supposition of this kind, which really is only founded on a very shocking comparison with the wind which animates musical organs.

I have showed above that the pretended demonstration of the Peripatetics who maintained that there was but one spirit, common to all men, is of no force, and rests only on false suppositions. Spinoza has pretended to prove that there is only one substance in the world, but these proofs are contemptible or unintelligible. And the New Cartesians, who believed that God alone is active, gave no proof of it; not to mention that Father Malebranche seemed to admit at least the internal action of individual spirits. One of the most apparent reasons which have been urged against individual souls, is the embarrassment as to their origin. The scholastic philosophers have disputed greatly over the origin of forms, among which they include souls. Opinions differed greatly as to whether there was an eduction of power from matter, as a statue is extracted from marble; or whether there was a traduction of souls so that a new soul should be born of a preceding soul as one fire is lighted from another; or whether souls already existed and only made themselves known after the generation of the animal; or finally whether souls were created by God every time there was a new generation.

Those who denied individual souls, believed that they were thereby freeing themselves from all difficulties, but this is cutting the knot instead of untying it, and there is no force in an argument which would run thus: *the explanations of a doctrine have been various, hence the whole doctrine is false.* This is the manner in which sceptics reason and if it were to be accepted, there would be nothing which could not be rejected. The experiments of our time lead us to believe that souls and even animals have always existed, although in small volume, and that generation is only a kind of growth; and in this way all the difficulties concerning the generation of souls and of forms, disappear. However we do not refuse

God the right to create new souls or to give a higher degree of perfection to those which are already in nature, but we speak of what is ordinary in nature without entering into the particular economy of God in respect to human souls, which may have privileges since they are infinitely above those of animals.

In my opinion what has greatly contributed to incline ingenious persons toward the doctrine of a single universal spirit, is the fact that common philosophers gave currency to a theory, treating of separate souls and the functions of the soul independent of the body and of the organs, which they could not sufficiently justify; they had good reason for wishing to maintain the immortality of the soul as in accordance with divine perfections and true morality, but seeing that, in death, the organs visible in animals became disordered and finally spoiled, they believed themselves obliged to have recourse to separate souls, that is to say, to believe that the soul existed without any body, and did not even then cease to have its thoughts and activities. And in order to better prove this they tried to show that the soul, even in this life, has abstract thoughts, independent of material ideas. Now those who rejected this separate state and this independence, as contrary to experience and reason, were all the more compelled to believe in the extinction of the particular soul and the preservation of the single, universal spirit.

I have examined this matter carefully and I have proved that really there are in the soul some materials of thought or objects of the understanding which the external senses do not furnish, namely, the soul itself and its activities (*nihil est in intellectu quod non fuerit in sensu, nisi ipse intellectus*); and those who believe in a universal spirit will readily grant this, since they distinguish it from matter. I find, nevertheless, that there is never an abstract thought which is not accompanied by some images or material traces, and I have established a perfect parallelism between what takes place in the soul and what takes place in matter, having shown that the soul with its activities is something distinct from matter, but that nevertheless it is always accompanied by organs which must correspond to it; and that this is reciprocal and always will be.

And as to the complete separation between soul and body, although I can say nothing beyond what is said in the Holy Scrip-

tures of the laws of grace and of what God has ordained in respect to human souls in particular—since these are things which cannot be known through the reason and which depend upon revelation and upon God himself, nevertheless, I see no reason either in religion or in philosophy, which obliges me to give up the doctrine of the parallelism of the soul and the body, and to admit a perfect separation. For why might not the soul always retain a subtile body, organized in its fashion, and even resume some day, in the resurrection, as much as is necessary of its visible body, since we accord to the blessed a glorious body and since the ancient Fathers accorded a subtile body to the angels?

Moreover this doctrine is conformable to the order of nature, established through experience; for the observations of very skillful observers make us believe that animals do not begin when the ordinary person thinks they do, and that the seminal animals, or animated seeds, have existed ever since the beginning of things. Order and reason demand also that what has existed since the beginning should not end; and thus as generation is only the growth of a transformed and developed animal, so death will only be the diminution of a transformed and developed animal, while the animal itself will always remain, during the transformations, as the silkworm and the butterfly are the same animal. And it is well to remark here that nature has the skill and the goodness to reveal its secrets to us in a few little samples, to make us judge of the rest, since everything is correspondent and harmonious. It shows this also in the transformation of caterpillars and of some insects—for flies also come from worms—to make us divine that there are transformations everywhere. Experiments with insects have destroyed the common belief that these animals are engendered through nourishment, without propagation. It is thus also that nature has shown us in the birds a specimen of the generation of all animals by means of eggs, a fact which new discoveries have now established. Experiments also with the microscope have shown that the butterfly is only a development of the caterpillar; but, above all, that the seeds contain the plant or animal already formed, although afterward it needs transformation and nutrition or growth in order to become an animal perceptible to our ordinary senses. And as the smallest insects are also engendered by the propagation of the species, we must judge the same to be true of

these little seminal animals, namely, that they themselves come from other seminal animals, even smaller, and so began to exist when the world did. This is in harmony with the Sacred Scriptures, which imply that seeds existed first of all.

Nature has given us an example in sleep and swoons, which ought to make us believe that death is not a cessation of all the functions, but only a suspension of certain of the more noticeable functions. And I have explained elsewhere an important point, which not having been sufficiently considered has the more easily inclined men to the opinion of the mortality of souls: namely, that a large number of minute perceptions, equal and interbalanced, having no background and no distinguishing marks, are not noticed and cannot be remembered. But to wish to conclude from this that the soul is then altogether without functions is the same thing as when the common people believe that there is a vacuum or nothing where there is no visible matter, and that the earth is without motion, because its motion is not noticeable, being uniform and without shocks. We have innumerable minute perceptions which we cannot distinguish; a great deafening noise, as, for example, the murmur of a whole assembled people, is composed of all the little murmurs of particular persons which we would not notice separately, but of which we have nevertheless a sensation, otherwise we would not be sensible of the whole. So when an animal is deprived of the organs capable of giving it sufficiently distinct perceptions, it does not at all follow that there do not remain to it smaller and more uniform perceptions, nor that it is deprived of all organs and all perceptions. The organs are only folded up and reduced to small volume, but the order of nature demands that everything redevelop, and, some day, return to a visible state, and that there be in these changes a certain well-regulated progress, which serves to make things ripen and become perfect. It appears that Democritus himself saw this resuscitation of animals, for Plotinus says that he taught a resurrection.

All these considerations show how not only individual souls, but also animals, exist, and that there is no reason to believe in an utter extinction of souls nor a complete destruction of the animal, and consequently that there is no need to have recourse to a single universal spirit and to deprive nature of its particular and existing perfections—which would be in reality also not to sufficiently con-

sider its order and harmony. There are besides many things in the doctrine of a single, universal spirit which cannot be maintained and involve difficulties much greater than those of the common doctrine.

Here are some of them: you see, in the first place, that the comparison with the wind which makes various pipes sound differently, flatters the imagination, but explains nothing, or rather implies exactly the contrary. For this universal breath of the pipes is only a collection of a quantity of separate breaths; moreover each pipe is filled with its own air which can even pass from one pipe to another, so that this comparison would establish rather individual souls, and would even favor the transmigration of souls from one body to another, as the air can change pipes.

And if we imagine that the universal spirit is like an ocean, composed of innumerable drops, which are detached from it when they animate some particular organic body, but reunite themselves to the ocean after the destruction of the organs, you again form a material and gross idea which does not suit the subject and becomes entangled in the same difficulties as the breath. For as the ocean is a collection of drops, God would likewise be an assembly of all the souls, just as a swarm of bees is an assembly of these little animals; but as this swarm is not itself a real substance, it is clear that in this way the universal spirit would not be a true being itself, and instead of saying that it is the only spirit, we should have to say that it is nothing at all in itself, and that there are in nature only individual souls, of which it would be the mass. Moreover these drops, reunited to the ocean of the universal spirit after the destruction of the organs, would be in reality souls which would exist separated from matter, and we should fall back again into what we wished to avoid, especially if these drops retain something of their preceding state, or have still some functions and could even acquire more sublime ones in the ocean of the divinity or of the universal spirit. For if you wish that these souls, reunited to God, be without any function of their own, you fall into an opinion contrary to reason and all sound philosophy, as if any existing being could ever reach a state where it would be without any function or impression. For one thing because it is joined to another does not therefore cease to have its own particular functions, which joined with those of the other, produce the functions of the whole. Otherwise the whole

would have none, if the parts had none. Besides I have elsewhere proved that every being retains perfectly all the impressions it has received, although these impressions may not be perceptible singly, because they are joined with so many others. So the soul reunited to the ocean of souls, would always remain the particular soul it had been while separated.

This shows that it is more reasonable and more in conformity with the custom of nature to allow individual souls to exist in the animals themselves, and not outside in God, and so to preserve not only the soul but also the animal, as I have explained above and elsewhere ; and thus to allow individual souls to remain always in activity, that is, in the particular functions which are peculiar to them and which contribute to the beauty and order of the universe, instead of reducing them to the sabbath in God of the Quietists, that is to say, to a state of idleness and uselessness. For as far as the beatific vision of blessed souls is concerned, it is compatible with the functions of their glorified bodies, which will not cease to be, in their way, organic.

But if some one wished to maintain that there are no individual souls, not even when the function of feeling and of thought takes place with the aid of the organs, he would be refuted by our experience which teaches us, as it seems to me, that we are a something in particular, which thinks, which perceives, which wills ; and that we are distinct from another something which thinks and which wills other things.

Otherwise we fall into the opinion of Spinoza, or of some other similar authors, who will have it that there is but one substance, namely God, which thinks, believes and wills one thing in me, but which thinks, believes and wills exactly the contrary in another ; on opinion of which M. Bayle, in certain portions of his Dictionary, has well shown the absurdity.

Or, if there is nothing in nature but the universal spirit and matter, we would have to say that if it is not the universal spirit itself which believes and wills opposite things in different persons, it is matter which is different and acts differently ; but if matter acts, of what use is the universal spirit ? If matter is nothing but an original passive substance, or a passive substance only, how can these actions be attributed to it ? It is therefore much more reasonable to believe that besides God, who is the supreme activity,

there are a number of individual active beings, since there are a number of particular and opposite actions and passions, which could not be attributed to the same subject; and these active beings are the individual souls.

We know also that there are degrees in all things. There is an infinity of degrees between any movement and perfect repose, between hardness and a perfect fluidity which is without any resistance, between God and nothingness. There is likewise an infinity of degrees between any active being whatsoever and a purely passive being. Consequently it is not reasonable to admit but one active being, namely the universal spirit, with a single passive being, namely matter.

It must also be considered that matter is not a thing opposed to God, but that it is rather opposed to the limited active being, that is, to the soul or to form. For God from whom matter as well as form comes is the supreme being opposed to nothingness; and the purely passive is something more than nothingness, being capable of something, while nothing can be attributed to nothingness. Thus with each particular portion of matter must be connected the particular forms,—that is, souls and spirits,—which belong to it.

I do not wish here to recur to a demonstrative argument which I have employed elsewhere, and which is drawn from the unities or simple things, among which individual souls are included. For this unavoidably obliges us not only to admit individual souls, but also to avow that they are immortal by their nature, and as indestructible as the universe; and, what is more, that each soul is in its way a mirror of the universe, without any interruption, and that it contains in its depths an order corresponding to that of the universe itself. The souls diversify and represent the universe in an infinity of ways, all different and all true, and multiply it, so to speak, as many times as is possible, so that in this way they approach divinity as much as is possible, according to their different degrees, and give to the universe all the perfection of which it is capable.

After this, I do not see on what reason or probability the doctrine of individual souls can be combated. Those who do so, admit that what is in us is an effect of the universal spirit. But the effects of God are subsistent, not to say that even the modifications and effects of creatures are in a way durable, and that their impressions only unite without being destroyed. Therefore, if in accordance with

reason and experience, as we have shown, the animal, with its more or less distinct perceptions and with certain organs, always subsists, and if consequently this effect of God subsists always in these organs, why would it not be permissible to call it the soul, and to say that this effect of God is a soul, immaterial and immortal, which imitates in a way the universal spirit? Since this doctrine, moreover, does away with all difficulties, as appears by what I have just said here and in other writings, which I have produced on these subjects.

XXIII.

On the Supersensible Element in Knowledge, and on the Immaterial in Nature: A Letter to Queen Charlotte of Prussia, 1702.

[From the French.]

Madame:

The letter written not long since from Paris to Osnabruck and which I recently read, by your order, at Hanover, seemed to me truly ingenious and beautiful. And as it treats of the two important questions, *Whether there is something in our thoughts which does not come from the senses*, and *Whether there is something in nature which is not material*, concerning which I acknowledge that I am not altogether of the opinion of the author of the letter, I should like to be able to explain myself with the same grace as he, in order to obey the commands and to satisfy the curiosity of your Majesty.

We use the external senses as, to use the comparison of one of the ancients, a blind man does a stick, and they make us know their particular objects which are colors, sounds, odors, flavors, and the qualities of touch, but they do not make us know what these sensible qualities are nor in what they consist. For example, whether red is the revolving of certain small globules which it is claimed cause light, whether heat is the whirling of a very fine dust, whether sound is made in the air as circles in the water when a stone is thrown into it, as certain philosophers claim; this is what we do not see. And we could not even understand how this revolving, these whirlings and these circles if they should be real should cause exactly these perceptions which we have of red, of heat, of noise. Thus it may be said that *sensible qualities* are in fact *occult qualities*, and that there must be others *more manifest* which can render the former more explicable. And far from understanding only sensible things, it is exactly these which we understand the least. And although they are familiar to us we do not understand them the better for that; as a pilot understands no better than another person the nature of the magnetic needle which turns toward the north, although he has it always before his

eyes in the compass, and although he does not admire it any the more for that reason.

I do not deny that many discoveries have been made concerning the nature of these occult qualities, as, for example, we know by what kind of refraction blue and yellow are formed, and that these two colors mixed form green; but for all this we cannot yet understand how the perception which we have of these three colors results from these causes. Also we have not even nominal definitions of such qualities by which to explain terms. The purpose of nominal definitions is to give sufficient marks by which the thing may be recognized; for example, assayers have marks by which they distinguish gold from every other metal, and even if a man had never seen gold these signs might be taught him so that he would infallibly recognize it if he should some day meet with it. But it is not the same with these sensible qualities, and marks to recognize blue, for example, could not be given if we had never seen it. So that blue is its own mark, and in order that a man may know what blue is it must necessarily be shown to him.

It is for this reason that we are accustomed to say that the *notions* of these qualities are *clear*, for they serve to recognize them; but that these same notions are not *distinct*, because we cannot distinguish nor develope that which they include. It is *I know not what* of which we are conscious, but for which we cannot account. Whereas we can make another understand what a thing is of which we have some description or nominal definition, even although we should not have the thing itself at hand to show him. However we must do the senses the justice to say that, in addition to these occult qualities, they make us know other qualities which are more manifest and which furnish more distinct notions. And these are those which we ascribe to *common sense*, because there is no external sense to which they are particularly attached and belong. And here definitions of the terms or words employed may be given. Such is the idea of *numbers*, which is found equally in sounds, colors, and touches. It is thus that we perceive also *figures*, which are common to colors and to touches, but which we do not notice in sounds. Although it is true that in order to conceive distinctly numbers and even figures, and to form sciences of them, we must come to something which the senses cannot furnish, and which the understanding adds to the senses.

As therefore our soul compares (for example) the numbers and figures which are in colors with the numbers and figures which are found by the touch, there must be an *internal sense*, in which the perceptions of these different external senses are found united. This is what is called the *imagination*, which comprises at once the *notions of the particular*, which are *clear* but *confused*, and the *notions of the common sense*, which are clear and distinct. And these clear and distinct ideas which are subject to the imagination are the objects of the *mathematical sciences*, namely of arithmetic and geometry, which are *pure* mathematical sciences, and of the application of these sciences to nature, forming mixed mathematics. It is evident also that particular sensible qualities are susceptible of explanations and of reasonings only in so far as they involve what is common to the objects of several external senses, and belong to the internal sense. For those who try to explain sensible qualities distinctly always have recourse to the ideas of mathematics, and these ideas involve *size* or multitude of parts. It is true that the mathematical sciences would not be demonstrative, and would consist in a simple induction or observation, which would never assure us of the perfect generality of the truths there found, if something higher and which intelligence alone can furnish did not come to the aid of the *imagination* and the *senses*.

There are, therefore, objects of still other nature, which are not included at all in what is observed in the objects of the senses in particular or in common, and which consequently are not objects of the imagination either. Thus besides the *sensible* and *imageable*, there is that which is purely *intelligible*, as being the *object of the understanding alone*, and such is the object of my thought when I think of myself

This thought of the *Ego*, which perceives sensible objects, and of my own action resulting therefrom, adds something to the objects of the senses. To think a color and to observe that one thinks it, are two very different thoughts, as different as the color is from the Ego which thinks it. And as I conceive that other beings may also have the right to say *I*, or that it could be said for them, it is through this that I conceive what is called *substance* in general, and it is also the consideration of the Ego itself which furnishes other *metaphysical* notions, as cause, effect, action, similarity, etc., and even those of *logic* and of *ethics*. Thus it can be said that

there is nothing in the understanding which does not come from the senses, except the understanding itself, or that which understands.

There are then three grades of notions: the *simply sensible*, which are the objects appropriate to each sense in particular; the *sensible and at the same time intelligible*, which pertain to the common sense; and the *simply intelligible*, which belong to the understanding. The first and the second are both imageable, but the third are above the imagination. The second and third are intelligible and distinct; but the first are confused, although they are clear or recognizable.

Being itself and *truth* are not known wholly through the senses, for it would not be impossible for a creature to have long and orderly dreams, resembling our *life*, of such a sort that everything which it thought it perceived through the senses would be but a mere *appearance*. There must therefore be something beyond the senses, which distinguishes the true from the apparent. But the truth of the demonstrative sciences is exempt from these doubts, and must even serve for judging of the truth of sensible things. For as able philosophers, ancient and modern, have already well remarked:—if all that I should think that I see should be but a dream, it would always be true that I who think while dreaming, would be something, and would actually think in many ways, for which there must always be some reason.

Thus what the ancient Platonists have observed is very true, and is very worthy of being considered, that the existence of sensible things and particularly of the *Ego* which thinks and which is called spirit or soul, is incomparably more sure than the existence of sensible things; and that thus it would not be impossible, speaking with metaphysical rigor, that there should be at bottom only these intelligible substances, and that sensible things should be but appearances. While on the other hand our lack of attention makes us take sensible things for the only true things. It is well also to observe that if I should discover any demonstrative truth, mathematical or otherwise, while dreaming (as might in fact be), it would be just as certain as if I had been awake. This shows us how intelligible truth is independent of the truth or of the existence outside of us of sensible and material things.

This conception of *being* and of *truth* is found therefore in the

Ego and in the understanding, rather than in the external senses and in the perception of exterior objects.

There we find also what it is to affirm, to deny, to doubt, to will, to act. But above all we find there the *force of the consequences* of reasoning, which are a part of what is called the *natural light.* For example, from this premise, that *no wise man is wicked*, we may, by reversing the terms, draw this conclusion, that *no wicked man is wise.* Whereas from this sentence, that *every wise man is praiseworthy*, we cannot conclude by reversing it, that *every one praiseworthy is wise* but only that *some praiseworthy ones are wise.* Although we may always reverse particular affirmative propositions, for example, if *some wise man is rich* it must also be that *some rich men are wise*, this cannot be done in particular negatives. For example, we may say that *there are charitable persons who are not just*, which happens when charity is not sufficiently regulated ; but we cannot infer from this that *there are just persons who are not charitable ;* for in justice are included at the same time charity and the rule of reason.

It is also by this *natural light* that the *axioms* of mathematics are recognized ; for example, that *if from two equal things the same quantity be taken away the things which remain are equal ;* likewise that *if in a balance everything is equal on the one side and on the other, neither will incline*, a thing which we foresee without ever having experienced it. It is upon such foundations that we establish arithmetic, geometry, mechanics and the other demonstrative sciences, in which, in truth, the senses are very necessary, in order to have certain ideas of sensible things, and experiences are necessary to establish certain facts, and even useful to verify reasonings as by a kind of proof. But the force of the demonstrations depends upon intelligible notions and truths, which alone are capable of making us discern what is necessary, and which, in the conjectural sciences, are even capable of determining demonstratively the degree of probability, concerning certain given suppositions, in order that we may choose rationally among opposite appearances, the one which is greatest. Nevertheless this part of the art of reasoning has not yet been cultivated as much as it ought to be.

But to return to *necessary truths*, it is universally true that we know them only by this natural light, and not at all by the experi-

ences of the senses. For the senses can very well make known in some way what is, but they cannot make known what *ought to be* or could not be otherwise.

For example, although we may have experienced numberless times that every massive body tends toward the centre of the earth and is not sustained in the air, we are not sure that this is necessary as long as we do not understand the reason of it. Thus we could not be sure that the same thing would occur in air at a higher altitude, at a hundred or more leagues above us, and there are philosophers who imagine that the earth is a magnet, and as the ordinary magnet does not attract the needle when a little removed from it, they think that the attractive force of the earth does not extend very far either. I do not say that they are right, but I do say that one cannot go very certainly beyond the experiences he has had, if he is not aided by reason.

This is why the geometricians have always considered that what is only proved by *induction* or by examples in geometry or in arithmetic, is never perfectly proved. For example, experience teaches us that odd numbers continuously added together produce the square numbers, that is to say, those which come from multiplying a number by itself. Thus 1 and 3 make 4, that is to say 2 times 2, and 1 and 3 and 5 make 9, that is to say 3 times 3. And 1 and 3 and 5 and 7 make 16, that is 4 times 4. And 1 and 3 and 5 and 7 and 9 make 25, that is 5 times 5. And so on.

1	1	1	1
3	3	3	3
—	5	5	5
4	—	7	7
|	9	—	9
|	|	16	—
|	|	|	25
2	3	4	5
×	×	×	×
2	3	4	5
—	—	—	—
4	9	16	25

However, if one should experience it a hundred thousand times, continuing the calculation very far, he may reasonably think that this will always follow; but we do not therefore have absolute certainty of it, unless we learn the demonstrative reason which the mathematicians found out long ago. And it is on this foundation of the uncertainty of inductions, but carried a little too far, that an Englishman has lately wished to maintain that we can avoid death. For (said he) the consequence is not good, my father, my grandfather, my great-grandfather are dead and all the others who have lived before us; therefore we shall also die. For their death has no influence on us. The trouble is that we resemble them a little too much in this respect that the causes of their death subsist also

in us. For the resemblance would not suffice to draw sure consequences without the consideration of the same reasons.

In truth there are *experiments* which succeed numberless times and ordinarily, and yet it is found in some extraordinary cases that there are *instances* where the experiment does not succeed. For example, if we should have found a thousand times that iron put all alone on the surface of water goes to the bottom, we are not sure that this must always happen. And without recurring to the miracle of the prophet Elisha who made the iron float, we know that an iron pot may be made so hollow that it floats, and that it can even carry besides a considerable weight, as do boats of copper or of tin. And even the abstract sciences like geometry furnish cases in which what ordinarily occurs occurs no longer. For example, we ordinarily find that two lines which continually approach each other finally meet, and many people will almost swear that this could never be otherwise. And nevertheless geometry furnishes us with extraordinary lines, which are for this reason called *asymptotes*, which prolonged *ad infinitum* continually approach each other, and nevertheless never meet.

This consideration shows also that there is a *light born with us*. For since the senses and inductions could never teach us truths which are thoroughly universal, nor that which is absolutely necessary, but only that which is, and that which is found in particular examples; and since we nevertheless know necessary and universal truths of the sciences, a privilege which we have above the brutes; it follows that we have derived these truths in part from what is within us. Thus we may lead a child to these by simple interrogations, after the manner of Socrates, without telling him anything, and without making him experiment at all upon the truth of what is asked him. And this could very easily be practised in numbers and other similar matters.

I agree, nevertheless, that in the present state the external senses are necessary to us for thinking, and that, if we had none, we could not think. But that which is necessary for something does not for all that constitute its essence. Air is necessary for life, but life is something else than air. The senses furnish us the matter for reasoning, and we never have thoughts so abstract that something from the senses is not mingled therewith; but reasoning requires something else in addition to what is from the senses.

As to the *second question*, whether there are *immaterial substances*, in order to solve it, it is first necessary to explain one's self. Hitherto by matter has been understood that which includes only notions purely passive and indifferent, namely, extension and impenetrability, which need to be determined by something else to some form or action. Thus when it is said that there are immaterial substances, it is thereby meant that there are substances which include other notions, namely, perception and the principle of action or of change, which could not be explained either by extension or by impenetrability. These beings, when they have feeling, are called *souls*, and when they are capable of reason, they are called spirits. Thus if one says that force and perception are essential to matter he takes matter for corporeal substance which is complete, which includes form and matter, or the soul with the organs. It is as if it were said that there were souls everywhere. This might be true, and would not be contrary to the doctrine of immaterial substances. For it is not intended that these souls be outside of matter, but simply that they are something more than matter, and are not produced nor destroyed by the changes which matter undergoes, nor subject to dissolution, since they are not composed of parts.

Nevertheless it must be avowed also that there is *substance separated from matter*. And to see this, one has only to consider that there are numberless forms which matter might have received in place of the series of variations which it has actually received. For it is clear, for example, that the stars could move quite otherwise, space and matter being indifferent to every kind of motion and figure.

Hence the reason or universal determining cause whereby things are, and are as they are rather than otherwise, must be outside of matter. And even the existence of matter depends thereon, since we do not find in its notion that it carries with it the reason of its existence.

Now this ultimate reason of things, which is common to them all and universal by reason of the connection existing between all parts of nature, is what we call *God*, who must necessarily be an infinite and absolutely perfect substance. I am inclined to think that all immaterial finite substances (even the genii or angels according to the opinion of the ancient Church Fathers) are united

to organs, and accompany matter, and even that souls or active forms are everywhere found in it. And matter, in order to constitute a substance which is complete, cannot do without them, since force and action are found everywhere in it, and since the laws of force depend on certain remarkable metaphysical reasons or intelligible notions, without being explicable by notions merely material or mathematical, or which belong to the sphere of the imagination.

Perception also could not be explained by any mechanism whatsoever. We may therefore conclude that there is in addition something immaterial everywhere in these creatures, and particularly in us, in whom this force is accompanied by a sufficiently distinct perception, and even by that light, of which I have spoken above, which makes us resemble in miniature the Divinity, as well by knowledge of the order, as by the ordering which we ourselves know how to give to the things which are within our reach, in imitation of that which God gives to the universe. It is in this also that our *virtue* and perfection consist, as our *felicity* consists in the pleasure which we take therein.

And since every time we penetrate into the depths of things, we find there the most beautiful order we could wish, even surpassing what we have therein imagined, as all those know who have fathomed the sciences; we may conclude that it is the same in all the rest, and that not only immaterial substances subsist always, but also that their lives, progress and changes are regulated for advance toward a certain end, or rather to approach more and more thereto, as do the asymptotes. And although we sometimes recoil, like lines which retrograde, advancement none the less finally prevails and wins.

The natural light of reason does not suffice for knowing the detail thereof, and our experiences are still too limited to catch a glimpse of the laws of this order. The revealed light guides us meanwhile through faith, but there is room to believe that in the course of time we shall know them even more by experience, and that there are spirits which know them already more than we do.

Meanwhile the philosophers and the poets, for want of this, have betaken themselves to the fictions of metempsychosis or of the Elysian Fields, in order to give some ideas which might strike the populace. But the consideration of the perfection of things or (what

is the same thing) of the sovereign power, wisdom and goodness of God, who does all for the best, that is to say, in the greatest order, suffices to render content those who are reasonable, and to make us believe that the contentment ought to be greater, according as we are more disposed to follow order or reason.

XXIV.

An Explanation of Certain Points in his Philosophy: An Extract from a letter to Lady Masham. 1704.

[From the French.]

As I am altogether in favor of the principle of uniformity, which I think nature observes in the heart of things while it varies in ways, degrees and perfections, my whole hypothesis amounts to recognizing in substances which are removed from our view and observation, something parallel to what appears in those which are within our reach. Thus, taking now for granted that there is in us a simple being endowed with action and perception, I think that nature would be little connected, if this particle of matter which forms human bodies were alone endowed with that which would make it infinitely different from the rest (even in physics) and altogether heterogeneous in relation to all other known bodies. This makes me think that there are everywhere present such active beings in matter, and that there is no difference between them except in the manner of perception. And as our own perceptions are sometimes accompanied by *reflection* and sometimes not, and as from reflection come *abstractions and universal and necessary truths*, no traces of which are to be seen in brutes and still less in the other bodies which surround us, there is reason for believing that this simple being which is in us and which is called soul is distinguished by this from those of other known bodies.

Whether now these principles of action and of perception be called Forms, Entelechies, Souls, Spirits, or whether these terms be distinguished according to the notions one would like to attribute to them, the things will not thereby be changed. You will ask what these simple beings or these souls which I place in brutes and in the other creatures as far as they are organic, will become; I reply, that they must not be less inextinguishable than our souls, and that they cannot be produced or destroyed by the forces of nature.

But further, to preserve the analogy of the *future* or *past* as well as of *other* bodies with what we experience at *present* in *our* bodies, I hold that not only these souls or entelechies all have a

sort of organic body with them proportioned to their perceptions but also that they will always have one, and have always had one, as long as they have existed; so that not only the soul but also the animal itself (or that which is analogous to soul and animal, not to dispute about names) remains. And that thus generation and death can only be developments and envelopments, some examples of which nature, according to its custom, shows us visibly to aid us in divining that which is hidden. And consequently neither iron nor fire nor any other violences of nature, whatever ravages they may make in the body of an animal, can prevent the soul from preserving a certain organic body, inasmuch as the Organism, that is to say, order and artifice, is something essential to matter, produced and arranged by sovereign wisdom, and the production must always retain the traces of its author. This leads me to think also that there are no spirits entirely separated from matter except the first and sovereign being, and that the genii, however marvellous they may be, are always accompanied by bodies worthy of them. This must also be said of souls which nevertheless may be called separate by relation to this gross body. You see therefore, Madame, that all this is only to suppose that *it is everywhere and always just as with us and at present* (the supernatural excepted), except degrees of perfections which vary; and I leave you to judge if an hypothesis at least simpler and more intelligible can be thought of.

This very maxim, *not to suppose unnecessarily anything in creatures except what corresponds to our experiences*, has led me to my *System of the Preëstablished Harmony*. For we experience that bodies act among themselves according to mechanical laws, and that souls produce in themselves some internal actions. And we see no way of conceiving the action of the soul upon matter, or of matter upon the soul, or anything corresponding to it; it not being explicable by any machine whatever how material variations, that is to say, mechanical laws, cause perception to arise; nor how perception can produce change of velocity or of direction in animal spirits and other bodies, however subtile or gross they may be. Thus the inconceivability of another hypothesis as much as the good order of nature which is always uniform (without speaking here of other considerations), have made me believe that the soul and the body follow perfectly their laws, each one its own separately,

without the laws of the body being troubled by the actions of the soul and without bodies finding windows through which to influence souls. It will be asked then whence comes this accord of the soul with the body. The defenders of *occasional causes* teach that God accommodates at each moment the soul to the body and the body to the soul. But it being impossible that this be other than miraculous, it is unsuited to a philosophy which must explain the ordinary course of nature, for it would be necessary that God should continually disturb the natural laws of bodies. This is why I believed that it was infinitely more worthy of the economy of God and of the uniformity and harmony of his work, to conclude that he has at the beginning created souls and bodies such that each following its own laws accords with the other. It cannot be denied that this is possible to him whose wisdom and power are infinite. In this I still only attribute to souls and to bodies for all time and everywhere what we experience in them every time that the experience is distinct, that is to say, mechanical laws in bodies and internal actions in the soul: the whole consisting only in the present state joined with the tendency to changes, which take place in the body according to the moving forces and in the soul according to the perceptions of good and evil.

The only surprising thing which follows from this is that the works of God are infinitely more beautiful and more harmonious than had been believed. And it may be said that the subterfuge of the Epicureans against the argument drawn from the beauty of visible things (when they say that among numberless productions of chance it is not to be marvelled at if some world like our own has succeeded passably) is destroyed, in that the perpetual correspondence of beings which have no influence one upon the other can only come from a common cause of this harmony. M. Bayle (who is profound), having meditated on the consequences of this hypothesis, acknowledges that one never exalted more what we call the divine perfections, and that the infinite wisdom of God, great as it is, is not too great to produce such a pre-established harmony, the possibility of which he seemed to doubt. But I made him consider that even men produce *automata* which act as if they were rational and that God (who is an infinitely greater artist or, rather, with whom everything is art as much as is possible), in order to make matter act as minds require, has traced out for it its path. So

that after this we ought not to be more surprised at the fact that it acts with so much reason, than at the course of certain serpents in fireworks along an unseen cord, which shows that it is a man who manages them. The designs of God can only be grasped in proportion to the perfections found in them, and bodies being subjected to souls in advance in order to be accommodated to their voluntary actions, the soul in its turn is expressive of bodies in virtue of its primordial nature, being obliged to represent them by its involuntary and confused perceptions. Thus each one is the original or the copy of the other in proportion to the perfections or imperfections which it involves.

XXV.

Considerations on the Principles of Life, and on Plastic Natures; by the Author of the System of Preëstablished Harmony. 1705.

[From the French.]

As the dispute which has arisen on *plastic natures* and on the *principles of life* has given celebrated persons who are interested in it occasion to speak of my system, of which some explanation seems to be demanded (see *Biblioth. Chois.*, vol. 5, art. 5, p. 301, and also *l'Histoire des Ouvrages des Savans*, of 1704, art. 7, p. 393), I have thought it would be in place to add something to what I have already published on the subject in various passages of the Journals quoted by Bayle in his Dictionary, article *Rorarius*. I really admit principles of life diffused throughout all nature, and immortal since they are indivisible substances or UNITS, as bodies are multitudes liable to perish by dissolution of their parts. These principles of life or these souls have perception or desire. When I am asked if there are substantial forms, I reply in making a distinction. For if this term is taken as Descartes takes it when he maintains against Regis that the rational soul is the substantial form of man, I will answer, Yes. But I answer, No, if the term is taken as those take it who imagine that there is a substantial form of a piece of stone, or of any other non-organic body; for the principles of life belong only to organic body. It is true (according to my system) that there is no portion of matter in which there are not numberless organic and animated bodies; under which I include not only animals and plants, but perhaps also other kinds which are entirely unknown to us. But for all this, it must not be said that each portion of matter is animated, just as we do not say that a pond full of fishes is an animated body, although a fish is.

However, my opinion on the *principles of life* is in certain points different from that hitherto taught. One of these points is that all have believed that these principles of life change the course of the motion of bodies, or at least give occasion to God to change it, whereas, according to my system, this course is not changed at all in the order of nature, God having pre-established it as it

ought to be. The Peripatetics believed that souls had an influence on bodies and that according to their will or desire they gave some impression to bodies. And the celebrated authors who have given occasion for the present dispute, by their principles of life and their plastic natures, have held the same view, although they are not Peripatetics. We cannot say as much of those who have employed *ἀρχαί*, or hylarchic principles, or other immaterial principles under different names. Descartes having well recognized that there is a law of nature, according to which the same quantity of force is preserved (although he was deceived in its application in confounding quantity of force with quantity of motion), believed that we ought not to ascribe to the soul the power of increasing or diminishing the force of bodies, but simply that of changing their direction, by changing the course of the animal spirits. And those Cartesians, who have introduced the doctrine of Occasional Causes, believed that the soul not being able to exert any influence on body, it was necessary that God should change the course or direction of the animal spirits according to the volitions of the soul. But if at the time of Descartes the new law of nature, which I have demonstrated, had been known, which affirms that not only the same quantity of total force of bodies which are in communication, but also their total direction, is preserved, he would probably have discovered my system of Pre-established Harmony. For he would have recognized that it is as reasonable to say that the soul does not change the quantity of the direction of bodies, as it is reasonable to deny to the soul the power of changing the quantity of their force, both being equally contrary to the order of things and to the laws of nature, as both are equally inexplicable. Thus, according to my system, souls or the principles of life do not change anything in the ordinary course of bodies, and do not even give to God *occasion* to do so. Souls follow their laws which consist in a certain development of perceptions, according to the goods and the evils; and bodies also follow their laws, which consist in the laws of motion; and nevertheless these two beings of entirely different kind are in perfect accord, and correspond like two clocks perfectly regulated on the same basis, although perhaps of an entirely different construction. This is what I call Pre-established Harmony, which removes all notion of miracle from purely natural actions, and makes things run their course

regulated in an intelligible manner; whereas the common system has recourse to absolutely inexplicable influences, and in that of Occasional Causes, God, by a sort of general law and as if by agreement, is obliged to change at each moment the natural course of the thoughts of the soul to accommodate them to the impressions of the body, and to disturb the natural course of the motions of bodies according to the volitions of the soul; that which can only be explained by a perpetual miracle, while I explain it quite intelligibly by the natures which God has established in things.

My system of Pre-established Harmony furnishes a new proof, hitherto unknown, of the existence of God, since it is quite manifest that the agreement of so many substances, of which the one has no influence upon the other, could only come from a general cause, on which all of them depend, and that this must have infinite power and wisdom to pre-establish all these harmonies. M. Bayle himself has thought that there never has been an hypothesis which so sets in relief the knowledge which we have of the divine wisdom. The system has moreover the advantage of preserving in all its rigor and generality the great principle of physics that a body never receives change in its motion except by another body in motion which impels it. *Corpus non moveri nisi impulsum a corpore contiguo et moto.* This law has been violated hitherto by all those who have admitted souls or other immaterial principles, all Cartesians included. The followers of Democritus, Hobbes, and some other thorough-going materialists, who have rejected all immaterial substance, having alone up to this time preserved this law have believed that they found therein ground for insulting other philosophers, as if they thus maintained a very irrational opinion. But the ground of their triumph has been but apparent and *ad hominem;* and far from serving them, it serves to confound them, and now, their illusion being discovered and their advantage turned against them, it seems that it may be said that it is the first time that the best philosophy shows itself also the most conformed in all respects to reason, nothing remaining which can be opposed to it. This general principle, although it excludes particular first movers, by making us deny this quality to soul or to immaterial created principles, leads us so much the more surely and clearly to the universal first mover, from whom comes equally the succession and harmony of perceptions. They are like two kingdoms, the one

of efficient causes, the other of final; each of which separately suffices in detail for explaining all as if the other did not exist. But the one does not suffice without the other in what is general of their origin, for they emanate from a source in which the power which constitutes efficient causes and the wisdom which regulates final causes are found united. This maxim also, that there is no motion which has not its origin in another motion, according to laws of mechanics, leads us again to the first mover, because matter being indifferent in itself to all motion or rest, and nevertheless always possessing motion with all its force and direction, it could not have been put in it except by the author himself of matter.

There is still another difference between the opinions of other authors who favor the principles of life, and mine. It is that I believe at the same time both that these principles of life are immortal and that they are everywhere; whereas according to the common opinion the souls of brutes perish, and according to the Cartesians, man only has really a soul and even perception and desire; an opinion which will never be approved, and which has only been embraced because it was seen that it was necessary either to accord to brutes immortal souls or to avow that the soul of man might be mortal. But it ought rather to have been said that every simple substance being imperishable and every soul being consequently immortal, that which could not be reasonably refused to brutes, cannot fail also to subsist always, although in a way very different from our own, since brutes, as far as can be judged, are lacking in that reflection which makes us think of ourselves. And we do not see why men have been so loath to accord to the bodies of other organic creatures immaterial, imperishable substances, since the defenders of atoms have introduced material substances which do not perish, and since the soul of the brute has no more reflection than an atom. For there is a broad difference between feeling which is common to these souls and the reflection which accompanies reason, since we have a thousand feelings without reflecting upon them; and I do not think that the Cartesians have ever proved or can prove that every perception is accompanied by consciousness. It is reasonable also that there may be substances capable of perception below us as there are above; and that our soul far from being the last of all is in a middle position from which one may descend and ascend, otherwise there would be a defect of order which certain philosophers

call *vacuum formarum*. Thus reason and nature lead men to the opinion I have just propounded; but prejudices have turned them aside from it.

This view leads us to another where I am again obliged to diverge from the received opinion. It will be asked of those who are of my opinion what the souls of brutes will do after the death of the animal, and they will impute to us the dogma of Pythagoras who believed in the transmigration of souls, which not only the late M. Van Helmont, the younger, but also an ingenious author of certain Metaphysical Meditations, published at Paris, have wished to revive. But it must be known that I am far from this opinion, because I believe that not only the soul but also the same animal subsists. Persons very accurate in experiments have already in our day perceived that it may be doubted whether an altogether new animal is ever produced, and whether animals wholly alive as well as plants are not already in miniature in germs before conception. This doctrine being granted, it will be reasonable to think that what does not begin to live also does not cease to live, and that death like generation is only the transformation of the same animal which is sometimes augmented and sometimes diminished. This again reveals to us hitherto unthought-of marvels of divine contrivance. This is, that the machines of nature being machines even to their smallest parts are indestructible, by reason of the envelopment of one little machine in a greater *ad infinitum*. Thus one finds one's self obliged at the same time to maintain the pre-existence of the soul as well as of the animal, and the substance of the animal as well as of the soul.

I have gradually been led to explain my view of the formation of plants and animals, since it appears from what I have just said that they are never formed altogether anew. I am therefore of the opinion of Cudworth (the greater part of whose excellent work pleases me extremely) that the laws of mechanics alone could not form an animal where there is nothing yet organized; and I find that with reason he is opposed to what some of the ancients have imagined on this subject and even Descartes in his *L'Homme*, the formation of which costs him so little, but which is also very far from being a real man. And I reinforce this opinion of Cudworth by presenting for consideration the fact that matter arranged by divine wisdom must be essentially organized throughout, and that

thus there is a machine in the parts of the natural machine *ad infinitum*, and so many envelopes and organic bodies enfolded one within another that an organic body never could be produced altogether new and without any preformation ; nor could an animal already existing be entirely destroyed. Thus I have no need to resort with Cudworth to certain immaterial *plastic natures*, although I remember that Julius Scaliger and other Peripatetics and also certain partisans of the Helmontian doctrine of Archæi have believed that the soul manufactures its own body. I may say of it *non mi bisogna, e non mi basta*, for the very reason of the preformation and organism *ad infinitum* which furnishes me the material plastic natures suited to the requirements of the case ; whereas the immaterial plastic principles are as little necessary as they are little capable of satisfying the case. For since the animals are never formed naturally of a non-organic mass, the mechanism incapable of producing *de novo* these infinitely varied organs can very well derive them through the development and through the transformation of a pre-existing organic body. Meanwhile those who employ plastic natures whether material or immaterial in no wise weaken the proof of the existence of God drawn from the marvels of nature, which appear particularly in the structure of animals, provided that these defenders of immaterial plastic natures, add a particular direction from God, and provided that those who with me make use of a material cause in assenting to plastic mechanism, maintain not only a continual preformation, but also an original divine pre-establishment. Thus whatever way we take we cannot overlook the divine existence in wishing to explain these marvels, which have always been admired but which have never been more apparent than in my system.

We see by this that not only the soul but also the animal must subsist always in the ordinary course of things. But the laws of nature are made and applied with so much order and so much wisdom that they serve more than one end, and God, who occupies the position of inventor and architect as regards the mechanism of nature, occupies the position of king and father to substances possessing intelligence, and of these the soul is a spirit formed after his image. And as regards spirits, his kingdom, of which they are the citizens, is the most perfect monarchy which can be invented ; in which there is no sin which does not bring upon itself some pun-

ishment, and no good action without some recompense; in which everything tends finally to the glory of the monarch and the happiness of the subjects, by the most beautiful combination of justice and goodness which can be desired. Nevertheless I dare not assert anything postively either as regards pre-existence or as regards the details of the future condition of human souls, since God might make use of extraordinary ways in the kingdom of grace; nevertheless that which natural reason favors ought to be preferred, at least if Revelation does not teach us the contrary, a point which I do not here undertake to decide.

Before ending, it will perhaps be well to note, among the other advantages of my system, that of the universality of the laws which I employ, which are always without exception in my general philosophy: and it is just the opposite in other systems. For example, I have already said that the laws of mechanics are never violated in natural motions, that the same force is always preserved, as also the same direction, and that everything takes place in souls as if there were no body, and that everything takes place in bodies as if there were no souls; that there is no part of space which is not full; that there is no particle of matter which is not actually divided, and which does not contain organic bodies; that there are also souls everywhere, as there are bodies everywhere; that souls and the same animals always subsist; that organic bodies are never without souls, and that souls are never separated from all organic body; although it is nevertheless true that there is no portion of matter of which it can be said that it is always affected by the same soul. I do not admit then that there are naturally souls entirely separated, nor that there are created spirits entirely detached, from all body, in which I am of the opinion of several ancient Church Fathers. God only is above all matter, since he is its author; but creatures, free or freed from matter, would be at the same time detached from the universal concatenation, and like deserters from the general order. This universality of laws is confirmed by its great facility of explanation, since the uniformity, which I think is observed in all nature, brings about that everywhere else, in all time and in every place, it can be said that *all is as it is here*, to the degrees of greatness and of near perfection; and that thus those things which are farthest removed and most concealed are perfectly explained by the analogy of what is visible and near to us.

XXVI.

Letter to M. Coste on Necessity and Contingency. 1707.

[From the French].

Hanover, Dec. 19, 1707.

To M. Coste, London:

I thank you very much for communicating to me the last additions and corrections of Locke, and I am pleased also to learn what you tell me of his last dispute with Limborch. The liberty of indifference, about which the dispute turns and my opinion of which you, sir, ask, consists in a certain subtilty which few people trouble themselves to understand and of which many people nevertheless reason. This carries us back to the consideration of necessity and of contingency.

A truth is *necessary* when the opposite involves contradiction, and when it is not necessary it is called *contingent*. It is a necessary truth that God exists, that all right angles are equal, etc., but that I myself exist, and that there are bodies in nature which show an angle actually right, are contingent truths. For the whole universe might be otherwise; time, space, and matter being absolutely indifferent to motions and forms. And God has chosen among an infinite number of possibles what he judged most fit. But since he has chosen, it must be affirmed that everything is comprised in his choice and that nothing could be changed, since he has once for all foreseen and regulated all; he who could not regulate things piecemeal and by fits and starts. Therefore the sins and evils which he has judged proper to permit for greater goods are comprised in his choice. This is the necessity, which can now be ascribed to things in the future, which is called *hypothetical or consequent* necessity (that is to say, founded upon the consequence of the hypothesis of the choice made), which does not destroy the contingency of things, and does not produce that absolute necessity which contingency does not allow. And nearly all theologians and philosophers (for we must except the Socinians) acknowledge the hypothetical necessity which I have just explained, and which cannot be combated without overthrowing the attributes of God and even the nature of things.

Nevertheless, although all the facts of the universe are now certain in relation to God, or (what amounts to the same thing) are determined in themselves and even linked among themselves, it does not follow that their connection is always truly necessary; that is to say, that the truth, which pronounces that one fact follows another, is necessary. And this must be applied particularly to *voluntary actions*. When a choice is proposed, for example to go out or not to go out, it is a question whether, with all the circumstances, internal and external, motives, perceptions, dispositions, impressions, passions, inclinations taken together, I am still in a contingent state, or whether I am necessitated to make choice, for example, to go out; that is to say, whether this proposition true and determined in fact, *In all these circumstances taken together I shall choose to go out*, is contingent or necessary. To this I reply that it is contingent, because neither I nor any other mind more enlightened than I, could demonstrate that the opposite of this truth implies contradiction. And supposing that by *liberty of indifference* is understood a liberty opposed to necessity (as I have just explained it), I acknowledge this liberty for I am really of opinion that our liberty, as well as that of God and of the blessed spirits, is exempt not only from co-action but furthermore from absolute necessity, although it can not be exempt from determination and from certainty.

But I find that there is need of great precaution here in order not to fall into a chimera which shocks the principles of good sense, and which would be what I call an *absolute indifference* or *an indifference of equilibrium*, which some conceive in liberty, and which I believe chimerical. It must be observed then that that connection of which I just spoke is not necessary, speaking absolutely, but that it is none the less certainly true, and that in general every time that in all the circumstances taken together the balance of deliberation is heavier on the one side than on the other, it is certain and infallible that that side will carry the day. God or the perfect sage would always choose the best that is known, and if one thing was no better than another, they would choose neither. In other intelligent substances passions often take the place of reason, and it can always be said in regard to the will in general that the *choice follows the greatest inclination*, under which I understand passions as well as reasons, true or apparent.

Nevertheless I see that there are people who imagine that we are determined sometimes for the side which is the less weighted, that God chooses sometimes the least good everything considered, and that man chooses sometimes without object and against all his reasons, dispositions, and passions, finally that one chooses sometimes without any reason which determines the choice. But this I hold to be false and absurd, since it is one of the greatest principles of good sense that nothing ever occurs without cause or determining reason. Thus when God chooses it is by reason of the Best, when man chooses it will be the side which shall have struck him most. If moreover he chooses that which he sees to be less useful and less agreeable, it will have become perhaps to him the most agreeable through caprice, through a spirit of contradiction, and through similar reasons of a depraved taste, which would none the less be determining reasons, even if they should not be conclusive reasons. And never can any example to the contrary be found.

Thus although we have a liberty of indifference which saves us from necessity, we never have an indifference of equilibrium which exempts us from determining reasons; there is always something which inclines us and makes us choose, but without being able to necessitate us. And just as God is always infallibly led to the best although he is not led necessarily (other than by a moral necessity), so we are always infallibly led to that which strikes us most, but not necessarily. The contrary not implying any contradiction, it was not necessary or essential that God should create nor that he should create this world in particular, although his wisdom and goodness has led him to it.

It is this that M. Bayle, very subtle as he has been, has not sufficiently considered when he thought that a case similar to the ass of Buridan was possible, and that a man placed in circumstances of perfect equilibrium could none the less choose. For it must be said that the case of a perfect equilibrium is chimerical and never occurs, the universe not being able to be parted or cut into parts equal and alike. The universe is not like an ellipse or other such oval which the straight line drawn through its centre can cut in two congruent parts. The universe has no centre and its parts are infinitely varied, thus the case will never occur where all will be perfectly equal and will strike equally from one side and from the other, and although we are not always capable of perceiving all the

little impressions which contribute to determine us, there is always something which determines us between two contradictories, without the case ever being perfectly equal on the one side and on the other.

Nevertheless, although our choice *ex datis* on all the internal and external circumstances taken together is always determined, and although for the present it does not depend upon us to change the will, it is none the less true that we have great power over our future wills by choosing certain objects of our attention and by accustoming ourselves to certain ways of thinking, and by this means we can accustom ourselves the better to resist impressions and the better make the reason act, to the end that we can contribute toward making ourselves will what we ought to.

For the rest I have elsewhere shown, that, regarding matters in a certain metaphysical sense, we are always in a state of perfect spontaneity, and that what is attributed to the impressions of external things comes only from confused perceptions in us which correspond to them, and which cannot but be given us at the start in virtue of the pre-established harmony which establishes the connection of each substance with all others.

If it were true, sir, that your Sevennese were prophets, that event would not be contrary to my hypothesis of the Pre-established Harmony and would even be in thorough agreement with it. I have always said that the present is big with the future and that there is a perfect connection between things however distant they may be one from another, so that one of sufficient penetration might read the one in the other. I should not even oppose one who should maintain that there are globes in the universe where prophecies are more common than on our own, as there will perhaps be a world in which dogs will have sufficiently good noses to scent their game at a thousand leagues, perhaps also there are globes in which genii have more freedom than here below to mix in the actions of rational animals. But when the question is to reason on what is actually practised here, our presumptive judgment must be founded on the custom of our globe, where prophetic views of this sort are very rare. We cannot swear that there are none, but we could wager that these in question are not such. One of the reasons which would most lead me to judge favorably of them would be the judgment of M. Fatio but it would be necessary to know his

opinion without taking it from the newspaper. If you had with all due attention associated yourself with a gentleman with an income of £2000 sterling who prophesies in Greek, in Latin, and in French, although he only knows English well, there would be nothing to be said. So I beg you, sir, to enlighten me more on a matter so interesting and important. I am, etc.

XXVII.

Refutation of Spinoza. c. 1708.

[From the Latin.]

The author [Wachter] passes on (ch. 4) to Spinoza, whom he compares with the cabalists. Spinoza (Eth., pt. 2, prop. 10, schol.) says: "Every one must admit that nothing is or can be conceived without God. For it is acknowledged by everyone that God is the sole cause of all things, of their essence as well as of their existence; that is, God is the cause of things, not only in respect to their being made (*secundum fieri*), but also in respect to their being (*secundum esse*)." This, from Spinoza, the author [Wachter] appears to approve. And it is true that we must speak of created things only as permitted by the nature of God. But I do not think that Spinoza has succeeded in this. Essences can in a certain way be conceived of without God, but existences involve God. And the very reality of essences by which they exert an influence upon existences is from God. The essences of things are co-eternal with God. And the very essence of God embraces all other essences to such a degree that God cannot be perfectly conceived without them. But existence cannot be conceived of without God, who is the final reason of things.

This axiom, "To the essence of a thing belongs that without which it can neither be nor be conceived," is to be applied in necessary things or in species, but not in individuals or contingent things. For individuals cannot be distinctly conceived. Hence they have no necessary connection with God, but are produced freely. God has been inclined toward these by a determining reason, but he has not been necessitated.

Spinoza (de Emend. Intel., p. 374) places among fictions the dictum, "Something can be produced from nothing." But, in truth, modes which are produced, are produced from nothing. Since there is no matter of modes, assuredly neither the mode, nor a part of it, has preëxisted, but only another mode which has disappeared and to which this present one has succeeded.

The cabalists seem to say that matter, on account of the vileness of its essence, can neither be created nor can it exist; hence,

that there is absolutely no matter, or that spirit and matter, as Henry More maintains in his cabalistic theses, are one and the same thing. Spinoza, likewise, denies that God could have created any corporeal and material mass to be the subject of this world, "because," he says, "those who differ do not know by what divine power it could have been created." There is some truth in these words, but I think it is not sufficiently understood. Matter does, in reality, exist, but it is not a substance, since it is an aggregate or resultant of substances: I speak of matter as far as it is secondary or of extended mass, which is not at all a homogeneous body. But that which we conceive of as homogeneous and call primary matter is something incomplete, since it is merely potential. Substance, on the contrary, is something full and active.

Spinoza believed that matter, as commonly understood, did not exist. Hence he often warns us that matter is badly defined by Descartes as extension (Ep. 73), and extension is poorly explained as a very vile thing which must be divisible in place, "since (de Emend. Intel., p. 385) matter ought to be explained as an attribute expressing an eternal and infinite essence." I reply that extension, or if you prefer, primary matter, is nothing but a certain indefinite repetition of things as far as they are similar to each other or indiscernible. But just as number supposes numbered things, so extension supposes things which are repeated, and which have, in addition to common characteristics, others peculiar to themselves. These accidents, peculiar to each one, render the limits of size and shape, before only possible, actual. Merely passive matter is something very vile, that is, wanting in all virtue, but such a thing consists only in the incomplete or in abstraction.

Spinoza (Eth., pt. 1, prop. 13, corol. and prop. 15, schol.) says: "No substance, not even corporeal substance, is divisible." This statement is not surprising according to his system, since he admits but one substance; but it is equally true in mine, although I admit innumerable substances, for, in my system, all are indivisible or *monads*.

He says (Eth., pt. 3, prop. 2, schol.) that "the mind and the body are the same thing, only expressed in two ways," and (Eth., pt. 2, prop. 7, schol.) that "thinking substance and extended substance are one and the same, known now under the attribute of thought, now under that of extension." He says in the same scho-

lium, "This, certain Hebrews seem to have seen as through a cloud, who indeed maintain that God, the intellect of God, and the things known by it, are one and the same." This is not my opinion. Mind and body are not the same any more than are the principle of action and that of passion. Corporeal substance has a soul and an organic body, that is, a mass made up of other substances. It is true that the same substance thinks and has an extended mass joined to it, but it does not consist of this mass, since all this can be taken away from it, without altering the substance; moreover, every substance perceives, but not every substance thinks. Thought indeed belongs to the monads, especially all perception, but extension belongs to compounds. It can no more be said that God and the things known by God are one and the same thing than that the mind and the things perceived by the mind are the same. The author [Wachter] believes that Spinoza posited a common nature in which the attributes thought and extension reside, and that this nature is spiritual; but there is no extension belonging to spirits unless the word be taken in a broader sense for a certain subtile animal such as angels were regarded by the ancients. The author [Wachter] adds that mind and body are the modes of these attributes. But how, I ask, can the mind be the mode of thought, when it is the principle of thought? Thus the mind should rather be the attribute and thought the modification of this attribute. It is astonishing also that Spinoza, as was seen above (de Emend. Intel., p. 385), seems to deny that extension is divisible into and composed of parts; which has no meaning, unless, perchance, like space, it is not a divisible thing. But space and time are orders of things and not things.

The author [Wachter] rightly says, that God found in himself the origins of all things, as I remember Julius Scaliger once said that "things are not produced by the passive power of matter but by the active power of God." And I assert this of forms or of activities or entelechies.

What Spinoza (Eth., pt. 1, prop. 34) says, that "God is, by the same necessity, the cause of himself and the cause of all things," and (Polit. Tract., p. 270, c. 2, no. 2) that "the power of things is the power of God," I do not admit. God exists necessarily, but he produces things freely, and the power of things is produced by God but is different from the divine power, and things themselves operate, although they have received their power to act.

Spinoza (Ep. 21) says: "That everything is in God and moves in God, I assert with Paul and perhaps with all other philosophers, although in a different manner. I would even dare to say that this was the opinion of all the ancient Hebrews, so far as it can be conjectured from certain traditions, although these are in many ways corrupted." I think that everything is in God, not as the part in the whole, nor as an accident in a subject, but as place, yet a place spiritual and enduring and not one measured or divided, is in that which is placed, namely, just as God is immense or everywhere: the world is present to him. And it is thus that all things are in him; for he is where they are and where they are not, and he remains when they pass away and he has already been there where they come.

The author [Wachter] says that it is the concordant opinion of the cabalists that God produced certain things mediately and others immediately. Whence he next speaks of a certain created first principle which God made to proceed immediately from himself and by the mediation of which all other things have been produced in series and in order, and this they are wont to salute by various names: Adam Cadmon, Messiah, the Christ, λόγος, the word, the first-born, the first man, the celestial man, the guide, the shepherd, the mediator, etc. Elsewhere he gives a reason for this assertion. The fact itself is recognized by Spinoza, so that nothing is wanting except the name. "It follows," he says (Eth., pt. 1, prop. 28, schol.), "in the second place, that God cannot properly be called the remote cause of individual things, except to distinguish these from those which God produces immediately or rather which follow from his absolute nature." Moreover what those things are which are said to follow from the absolute nature of God, he explained (prop. 21) thus: "All things which follow from the absolute nature of any attribute of God must exist always and be infinite or are eternal and infinite through the same attribute."—These propositions of Spinoza, which the author cites, are wholly without foundation. God produces no infinite creature, nor could it be shown or pointed out by any argument in what respect such a creature would differ from God.

The theory of Spinoza, namely, that from each attribute there springs a particular infinite thing, from extension a certain something infinite in extension, from thought a certain infinite under-

standing, arises from his varied imagination of certain heterogeneous divine attributes, like thought and extension, and perhaps innumerable others. For in reality extension is not an attribute of itself since it is only the repetition of perceptions. An infinitely extended thing is only imaginary: an infinite thinking being is God himself. The things which are necessary and which proceed from the infinite nature of God, are the eternal truths. A particular creature is produced by another, and this again by another. Thus, therefore, by no conception, could we reach God even if we should suppose a progress *ad infinitum*, and, notwithstanding, the last no less than the one which precedes is dependent upon God.

Tatian says, in his *Oration to the Greeks*, that there is a spirit dwelling in the stars, the angels, the plants, the waters and men, and that this spirit, although one and the same, contains differences in itself. But this doctrine I do not approve. It is the error of the world-soul universally diffused, and which, like the air in pneumatic organs, makes different sounds in different organs. Thus when a pipe is broken, the soul will desert it and will return into the world-soul. But we must know that there are as many incorporeal substances, or if you will, souls, as there are natural, organic machines.

But what Spinoza (Eth., pt. 2, prop. 13, schol.) says: "All things, although in different degrees, are animated," rests upon another strange doctrine, "for," he says, "of everything there is necessarily in God an idea, of which God is the cause, in the same way as there is an idea of the human body." But there is plainly no reason for saying that the soul is an idea. Ideas are something purely abstract, like numbers and figures, and cannot act. Ideas are abstract and numerical: the idea of each animal is a possibility, and it is an illusion to call souls immortal because ideas are eternal, as if the soul of a globe should be called eternal because the idea of a spherical body is eternal. The soul is not an idea, but the source of innumerable ideas, for it has, besides the present idea, something active, or the production of new ideas. But according to Spinoza, at any moment the soul will be different because the body being changed the idea of the body is different. Hence it is not strange if he considers creatures as transitory modifications.—The soul, therefore, is something vital or something containing active force.

Spinoza (Eth., pt. 1, prop. 16) says: "From the necessity of the

divine nature must follow an infinite number of things in infinite modes, that is to say, all things which can fall under infinite intellect." This is a most false opinion, and this error is the same as that which Descartes insinuated, viz., that matter successively assumes all forms. Spinoza begins where Descartes ended, *in Naturalism.* He is wrong also in saying (Ep. 58) that "the world is the effect of the divine nature," although he almost adds that it was not made by chance. There is a mean between what is necessary and what is fortuitous, namely, what is free. The world is a voluntary effect of God, but on account of inclining or prevailing reasons. And even if the world should be supposed perpetual nevertheless it would not be necessary. God could either not have created it or have created it otherwise, but he was not to do it. Spinoza thinks (Ep. 49) that "God produces the world by that necessity by which he knows himself." But it must be replied that things are possible in many ways, whereas it was altogether impossible that God should not know himself.—Spinoza says (Eth., pt. 1, prop. 17, schol.): "I know that there are many who believe that they can prove that sovereign intelligence and free will belong to the nature of God; for they say they know nothing more perfect to attribute to God than that which is the highest perfection in us. . . . . Therefore, they prefer to assert that God is indifferent to all things, and that he creates nothing except what he has decided, by some absolute will, to create. But I think I have shown (Prop. 16) sufficiently clearly that all things follow from the sovereign power of God by the same necessity; in the same way as it follows from the nature of a triangle that its three angles are equal to two right angles."—From the first words it is evident that Spinoza does not attribute to God intellect and will. He is right in denying that God is indifferent and that he decrees anything by absolute will: he decrees by a will which is based on reasons. That things proceed from God as the properties of a triangle proceed from its nature is proved by no argument, besides there is no analogy between essences and existing things.

In the scholium of Proposition 17, Spinoza says that "the intellect and the will of God agree with ours only in name, because ours are posterior and God's are prior to things;" but it does not follow from this, that they agree only in name. Elsewhere, nevertheless, he says that "thought is an attribute of God, and that

particular modes of thought must be referred to it (Eth. pt. 2, prop. 1)." But the author [Wachter] thinks that he is speaking there of the external word of God, because he says (Eth. pt. 5) "that our mind is a part of the infinite intellect."

"The human mind," says Spinoza (Eth., pt. 5, prop. 23, proof), "cannot be entirely destroyed with the body, but there remains something of it which is eternal. But this has no relation to time, for we attribute duration to the mind only during the duration of the body." In the scholium following, he adds, "This idea which expresses the essence of the body under the form of eternity [*sub specie æternitatis*] is a certain mode of thought which belongs to the essence of the mind and which is necessarily eternal, etc." This is illusory. This idea is like the figure of the sphere, the eternity of which does not prejudge its existence, since it is but the possibility of an ideal sphere. Thus it is saying nothing to say that "our mind is eternal in so far as it expresses the body under the form of eternity," and it would be likewise eternal because it understands eternal truths as to the triangle. "Our soul has no duration nor does time relate to anything beyond the actual existence of the body." Thus Spinoza, *l. c.*, who thinks that the mind perishes with the body because he believes that only a single body remains always, although this can be transformed.

The author [Wachter] adds: "I do not see that Spinoza has anywhere said positively that minds migrate from one body into another, and into different dwellings and various regions of eternity. Nevertheless it might be inferred from his thought." But he errs. The same soul, to Spinoza, cannot be the idea of another body, as the figure of a sphere is not the figure of a cylinder. The soul, to Spinoza, is so fugitive, that it does not exist even in the present moment, and the body too only exists in idea. Spinoza says (Eth., pt. 5, prop. 2) that "memory and imagination disappear with the body." But I for my part think that some imagination and some memory always remain, and that, without them, there would be no soul. It must not be believed that the mind exists without feeling or without a soul. A reason without imagination and memory is a conclusion without premises. Aristotle, also, thought that *νοῦς*, mind, or the acting intellect remains, and not the soul. But the soul itself acts and the mind is passive.

Spinoza (de Emend. Intel., p. 384) says, "The ancients never, to my knowledge, conceived, as we do here, a soul acting according to

certain laws and like a spiritual *automa*" (he meant to say *automaton*). The author [Wachter] interprets this passage of the soul alone and not of the mind, and says that the soul acts according to the laws of motion and according to external causes. Both are mistaken. I say that the soul acts spontaneously and yet like a spiritual automaton; and that this is true also of the mind. The soul is not less exempt than the mind from impulses from external things, and the soul no more than the mind acts determinately; as in bodies everything is done by motions according to the laws of force, so in the soul everything is done through effort or desire, according to the laws of the Good. The two realms are in harmony. It is true, nevertheless, that there are certain things in the soul which cannot be explained in an adequate manner except by external things, and so far the soul is subject to the external; but this is not by a physical influx, but so to speak by a moral, in so far, namely, as God, in creating the mind, had more regard to other things than to it itself. For in the creation and preservation of each thing he has regard to all other things.

Spinoza is wrong in calling [Eth., pt. 3, 9, schol.] the will the effort of each thing to persist in its being; for the will tends toward more particular ends and a more perfect mode of existence. He is wrong also in saying [pt. 3, prop. 7] that the effort is identical with the essence, whereas the essence is always the same and efforts vary. I do not admit that affirmation is the effort of the mind to persist in its being, that is, to preserve its ideas. We have this effort even when we affirm nothing. Moreover, with Spinoza, the mind is an idea, it does not have ideas. He is also wrong in thinking that affirmation or negation is volition, since, moreover, volition involves, in addition, the reason of the Good.

Spinoza (Ep. 2, ad Oldenb.) says that "the will differs from this or that volition, just as whiteness from this or that white color: consequently, will is not the cause of volition, as humanity is not the cause of Peter and of Paul. Particular volitions have therefore need of another cause. The will is only an entity of reason." So Spinoza. But we take the will for the power of choosing, the exercise of which is the volition. Therefore it is indeed by the will that we will; but it is true that there is need of other special causes to determine the will, namely, in order that it produce a certain volition. It must be modified in a certain manner. The

will does not therefore stand to volitions as the species or the abstract of the species to individuals. Mistakes are not free nor acts of will, although often we concur in our errors by free actions.

Further, Spinoza says (Tract. Polit., c. 2, no. 6), "Men conceive themselves in nature as an empire within an empire (Malcuth in Malcuth, adds the author). For they think that the human mind is not the product of natural causes, but that it is immediately created by God so independent of other things that it has absolute power of determining itself and of using rightly its reason. But experience proves to us over-abundantly that it is no more in our power to have a sound mind than to have a sound body." So Spinoza. In my opinion, each substance is an empire within an empire; but harmonizing exactly with all the rest it receives no influence from any being except it be from God, but, nevertheless, through God, its author, it depends upon all the others. It comes immediately from God and yet it is created conformed to the other things. For the rest, not all things are equally in our power. For we are inclined more to this or to that. Malcuth, or the realm of God, does not suppress either divine or human liberty, but only the indifference of equilibrium, as they say who think there are no reasons for those actions which they do not understand.

Spinoza thinks that the mind is greatly strengthened if it knows that what happens happens necessarily: but by this compulsion he does not render the heart of the sufferer content nor cause him to feel his malady the less. He is, on the contrary, happy if he understands that good results from evil and that those things which happen are the best for us if we are wise.

From what precedes it is seen that what Spinoza says on the intellectual love of God (Eth., pt. 4, prop. 28) is only trappings for the people, since there is nothing loveable in a God who produces without choice and by necessity, without discrimination of good and evil. The true love of God is founded not in necessity but in goodness. Spinoza (de Emend. Intel., p. 388), says that "there is no science, but that we have only experience of particular things, that is, of things such that their existence has no connection with their essence, and which, consequently, are not eternal truths."—This contradicts what he said elsewhere, viz: that all things are necessary, that all things proceed necessarily from the divine essence. Like-

wise he combats (Eth., pt. 2, prop. 10, schol.) those who pretend that the nature of God belongs to the essence of created things, and yet he had established before [Eth., pt. 1, prop. 15] that things do not exist and cannot be conceived without God, and that they necessarily arise from him. He maintains (Eth., pt. 1, prop. 21), for this reason, that finite and temporal things cannot be produced immediately by an infinite cause, but that (Prop. 28) they are produced by other causes, individual and finite. But how will they finally then spring from God? for they cannot come from him mediately in this case, since we could never reach in this way things which are not similarly produced by another finite thing. It cannot, therefore, be said that God acts by mediating second causes, unless he produces second causes. Therefore, it is rather to be said that God produces substances and not their actions, in which he only concurs.

XXVIII.

Remarks on the Opinion of Malebranche that *We See All Things in God*, with reference to Locke's Examination of it. 1708.

[From the French.]

There is, in the posthumous works of Locke published at London in 1706, 8vo., an examination of the opinion of Malebranche that we see all things in God. It is acknowledged at the start that there are many nice thoughts and judicious reflections in the book on *The Search after Truth*, and that this made him hope to find therein something satisfactory on the nature of our ideas. But he has remarked at the beginning (§ 2) that this Father [Malebranche] makes use of what Locke calls the *argumentum ad ignorantiam*, in pretending to prove his opinion, because there is no other means of explaining the thing: but according to Mr. Locke, this argument loses its force when the feebleness of our understanding is considered. I am nevertheless of opinion that this argument is good if one can perfectly enumerate the means and exclude all but one. Even in Analysis, M. Frenicle employed this method of exclusion, as he called it. Nevertheless Locke is right in saying that it is of no use to say that this hypothesis is better than the other, if it is found not to explain what one would like to understand and even to involve things which cannot harmonize.

After having considered what is said in the first chapter of the second part of book third, where Malebranche claims that what the soul can perceive must be in immediate contact with it, Mr. Locke asks (§ 3, 4.) what it is to be in *immediate contact*, this not appearing to him intelligible except in bodies. Perhaps it might be replied that one acts immediately on the other. And as Malebranche, admitting that our bodies are united to our souls, adds that it is not in such a way that the soul perceives it, he is asked (§ 5.) to explain that act of union or at least in what it differs from that which he does not admit? Father Malebranche will perhaps say that he does not know the union of the soul with the body except by faith, and that the nature of body consisting in extension alone, nothing can be deduced therefrom toward explaining the

soul's action on the body. He grants an inexplicable union, but he demands one which shall serve to explain the commerce of the soul and body. He claims also to explain why material beings could not be united with the soul as is demanded; this is because these beings being extended and the soul not being so, there is no relation between them. But thereupon Locke asks very *apropos* (§ 7.) if there is any more relation between God and the soul. It seems indeed that the Reverend Father Malebranche ought to have urged not the little relation, but the little connection, which appears between the soul and the body, while between God and the creatures there is a connection such that they could not exist without him.

When the Father says (§ 6.) that there is no purely intelligible substance except God, I declare that I do not sufficiently understand him. There is something in the soul that we do not distinctly understand; and there are many things in God that we do not at all understand.

Mr. Locke (§ 8.) makes a remark on the end of the Father's chapter which is tantamount to my views; for in order to show that the Father has not excluded all the means of explaining the matter, he adds: "If I should say that it is possible that God has made our souls such and has so united them to bodies that at certain motions of the body the soul should have such and such perceptions but in a manner inconceivable to us, I should have said something as apparent and as instructive as that which he says." Mr. Locke in saying this seems to have had in mind my system of Pre-established Harmony, or something similar.

Mr. Locke objects (§ 20.) that the sun is useless if we see it in God. As this argument applies also against my system, which claims that we see the sun in us, I answer that the sun is not made solely for us and that God wishes to show us the truth as to what is without us.

He objects also (§ 22.) that he does not conceive how we could see something confusedly in God, where there is no confusion. One might answer that we see things confusedly when we see too many of them at a time.

Father Malebranche having said that God is the place of spirits as space is the place of bodies, Mr. Locke says (§ 25.) that he does not understand a word of this. But he understands at least what

space, place and body are. He understands also that the Father draws an analogy between *space*, *place*, *body* and between *God*, *place*, *spirit*. Thus a good part of what he here says is intelligible. It may merely be objected that this analogy is not proven, although some relations are easily perceived which might give occasion for the comparison. I often observe that certain persons seek by this affectation of ignorance to elude what is said to them as if they understood nothing; they do this not to reproach themselves, but either to reproach those speaking, as if their jargon was unintelligible, or to exalt themselves above the matter and those who tell it, as if it was not worthy of their attention.

Nevertheless Mr. Locke is right in saying that the opinion of Father Malebranche is unintelligible in connection with his other opinions, since with him space and body are the same thing. The truth has escaped him here and he has conceived something common and immutable, to which bodies have an essential relation and which indeed produces their relation to one another. This order gives occasion for making a fiction and for conceiving space as an immutable substance; but what there is real in this notion relates to simple substances (under which spirits are included), and is found in God, who unites them.

The Father saying that ideas are representative beings, Mr. Locke asks (§ 26.) if these beings are substances, modes or relations? I believe that it may be said that they are nothing but relations resulting from the attributes of God.

When Mr. Locke declares (§ 31.) that he does not understand how the variety of ideas is compatible with the simplicity of God, it appears to me that he ought not raise an objection on this score against Father Malebranche, for there is no system which can make such a thing comprehensible. We cannot comprehend the incommensurable and a thousand other things, the truth of which we nevertheless know, and which we are right in employing to explain others which are dependent on them. There is something approaching to this in all simple substances; where there is variety of affections in unity of substance.

The Father maintains that the idea of the *infinite* is prior to that of the finite. Mr. Locke objects (§ 34.) that a child has the idea of a number or of a square sooner than that of the infinite. He is right in taking the ideas for images; but in taking them as the

foundations of notions, he will find that in the *continuum* the notion of an extended, taken absolutely, is prior to the notion of an extended where the modification is added. This must be further applied to what is said in §§ 42. and 46.

The argument of the Father which Mr. Locke examines (§ 40.), that God alone, being the end of spirits, is also their sole object, is not to be despised. It is true that it needs something in order to be called a demonstration. There is a more conclusive reason which shows that God is the sole immediate external object of spirits, and that is that there is naught but he which can act on them.

It is objected (§ 41.) that the Apostle begins with the knowledge of the creatures in order to lead to God and that the Father does the contrary. I believe that these methods harmonize. The one proceeds *a priori*, the other *a posteriori ;* and the latter is the more common. It is true that the best way to know things is through their causes ; but this is not the easiest. It requires too much attention to things of sense.

In replying to § 34. I have noticed the difference there is between image and idea. It seems that this difference is combated (§ 38.) by finding difficulty in the difference which there is between image [*sentiment*] and idea. But I think that the Father understands by image [*sentiment*] a perception of the imagination, whereas there may be ideas of things which are not sensible nor imageable. I affirm that we have as clear an idea of the color of the violet as of its figure (as is objected here) but not as distinct nor as intelligible.

Mr. Locke asks if an indivisible and unextended substance can have at the same time different modifications relating to inconsistent objects. I reply, Yes. That which is inconsistent in the same object is not inconsistent in the representation of different objects, conceived at the same time. It is not therefore necessary that there be different parts in the soul as it is not necessary that there be different parts in a point although different angles come together there.

It is asked with reason (§ 43.) how we know the creature if we do not see immediately aught but God ? Because the objects, the representation of which God causes us to have, have something which resembles the idea we have of substance, and it is this which makes us judge that there are other substances.

It is supposed (§ 46.) that God has the idea of an angle which is the nearest to the right angle, but that he does not show it to anyone, however one may desire to have it. I reply that such an angle is a fiction, like the fraction nearest to unity, or the number nearest to zero, or the least of all numbers. The nature of continuity does not permit any such thing.

The Father had said that we know our soul by an inner feeling of consciousness, and that for this reason the knowledge of our soul is more imperfect than that of things, which we know in God. Mr. Locke then remarks very *apropos* (§ 47.) that the idea of our soul being in God as well as that of other things, we should see it also in God. The truth is that we see all things in ourselves and in our souls, and that the knowledge which we have of the soul is very true and just provided that we attend to it; that it is by the knowledge which we have of the soul that we know being, substance, God himself, and that it is by reflection on our thoughts that we know extension and bodies; that it is nevertheless true that God gives us all there is that is positive in this, and all perfection therein involved, by an immediate and continual emanation, by virtue of the dependence on him which all creatures have, and it is thus that a good meaning may be given to the phrase that God is the object of our souls and that we see all things in him.

Perhaps the design of the Father in the saying which is examined (§ 53.), that we see the essences of things in the perfections of God and that it is the universal reason which enlightens us, tends to show that the attributes of God are the bases of the simple notions which we have of things,—being, power, knowledge, diffusion, duration, taken absolutely, being in him and not being in creatures save in a limited way.

XXIX.

Letter to Wagner on the Active Force of Body, on the Soul and on the Soul of Brutes. 1710.

[From the Latin.]

1. I willingly reply to the inquiries you make as to the nature of the soul, for I see from the doubt which you present that my view is not sufficiently clear to you, and that this is due to some prejudgment drawn from my essay, inserted in the *Acta Eruditorum*, wherein I treated, in opposition to the illustrious Sturm, of the active force of body. You say that I have not there sufficiently vindicated active force for matter, and while I attribute resistance to matter I have also attributed reaction to the same, and consequently action; since therefore there is everywhere in matter an active principle, this principle seems to suffice for the actions of brutes, nor is there need in them of an incorruptible soul.

2. I reply, in the first place, that the active principle is not attributed by me to bare or primary matter, which is merely passive, and consists only in *antitypia* and extension; but to body or to clothed or secondary matter which in addition contains a primitive *entelechy* or active principle. I reply, secondly, that the resistance of bare matter is not action, but mere passion, inasmuch as it has antitypia or impenetrability, by which indeed it resists whatever would penetrate it but does not react, unless there be added an elastic force, which must be derived from motion, and therefore the active force of matter must be superadded. I reply, thirdly, that this active principle, this first entelechy, is, in fact, a vital principle, endowed also with the faculty of perception, and incorruptible, for reasons recently stated by me. And this is the very thing which in brutes I hold for their soul. While, therefore, I admit active principles superadded everywhere in matter, I also posit, everywhere disseminated through it, vital or percipient principles, and thus monads, and, so to speak, metaphysical atoms wanting parts and incapable of being produced or destroyed naturally.

3. You next ask my definition of *soul*. I reply that soul may be employed in a broad and in a strict sense. Broadly speaking, soul

will be the same as life or vital principle, that is, the principle of internal action existing in the simple thing or monad, to which external action corresponds. And this correspondence of internal and external, or representation of the external in the internal, of the composite in the simple, of multiplicity in unity, constitutes in reality perception. But in this sense, soul is attributed not only to animals but also to all other percipient beings. In the strict sense, soul is employed as a nobler species of life, or sentient life, where there is not only the faculty of perceiving, but in addition that of feeling, inasmuch, indeed, as attention and memory are joined to perception. Just as, in turn, mind is a nobler species of soul, that is, mind is rational soul, where reason or ratiocination from universality of truths is added to feeling. As therefore mind is rational soul, so soul is sentient life, and life is perceptive principle. I have shown, moreover, by examples and arguments, that not all perception is feeling, but that there is also insensible perception. For example, I could not perceive green unless I perceived blue and yellow, from which it results. At the same time, I do not feel blue and yellow unless perchance a microscope is employed.

4. You will remember, moreover, that according to my opinion, not only are all lives, all souls, all minds, all primitive entelechies, everlasting, but also that to each primitive entelechy or each vital principle there is perpetually united a certain natural machine, which comes to us under the name of organic body : which machine, moreover, even although it preserves its form in general, remains in flux, and is, like the ship of Theseus, perpetually repaired. Nor therefore can we be certain that the smallest particle of matter received by us at birth, remains in our body, even although the same machine is by degrees completely transformed, augmented, diminished, involved or evolved. Hence, not only is the soul everlasting, but also some animal always remains, although no particular animal ought to be called everlasting, since the animal species does not remain ; just as the caterpillar, and the butterfly are not the same animal, although the same soul is in both. Every natural machine, therefore, has this quality, that it is never completely destructible, since, however thick a covering may be dissolved, there always remains a little machine not yet destroyed, like the costume of Harlequin, in the comedy, to whom, after the removal of many tunics, there always remained a fresh one. And we

ought to be the less astonished at this for this reason, that nature is everywhere organic and ordered by a most wise author for certain ends, and that nothing in nature ought to be criticized as unpolished, although it may sometimes appear to our senses as but a rude mass. Thus therefore we escape all the difficulties which arise from the nature of a soul absolutely separated from all matter; so that, in truth, a soul or an animal before birth or after death does not differ from a soul or an animal living the present life except in condition of things and degrees of perfections, but not by entire genus of being. And likewise I think that Genii are minds endowed with bodies very penetrating and suitable for action, which perhaps they are able to change at will, whence they do not deserve to be called even animals. Thus all things in nature are analogous, and the subtile may be understood from the coarse, since both are constituted in the same way. God alone is substance really separated from matter, since he is *actus purus*, endowed with no passive power, which, wherever it is, constitutes matter. And, indeed, all created substances have antitypia, by which it happens naturally that one is outside the other, and so penetration is excluded.

5. But although my principles are very general and hold not less in man than in brutes, yet man stands out marvellously above brutes and approaches the Genii, because from the use of reason he is capable of society with God, and thus of reward and of punishment in the divine government. And therefore he preserves not only life and soul like the brutes, but also self-consciousness and memory of a former state, and, in a word, personality. He is immortal, not only physically but also morally, whence in the strict sense immortality is attributed only to the human soul. For if a man did not know that in the other life rewards or punishments would be awarded him for this life, there would really be no punishment, no reward, and as regards morals, it would be just as if I were extinguished and another, happier or unhappier, should succeed me. And thus I hold that souls, latent doubtless in seminal animalcules from the beginning of things, are not rational until, by conception, they are destined for human life; but when they are once made rational and rendered capable of consciousness and of society with God, I think that they never lay aside the character of citizens in the Republic of God; and since it is most

justly and beautifully governed, it is a consequence that by the very laws of nature, on account of the parallelism of the kingdom of grace and of nature, souls by the force of their own actions are rendered more fit for rewards and punishments. And in this sense it may be said that virtue brings its own reward and sin its own punishment, since by a certain natural consequence, before the last state of the soul, according as it departs atoned for or unatoned for, there arises a certain natural divergence, preordained by God in nature and with divine promises and threats, and consistent with grace and justice; the intervention also being added of Genii, good or bad according as we have associated with either, whose operations are certainly natural although their nature is sublimer than ours. We see, indeed, that a man awaking from a profound sleep, or even recovering from apoplexy, is wont to recover the memory of his former state. The same must be said of death, which can render our perceptions turbid and confused but cannot entirely blot them from memory, the use of which returning, rewards and punishments take place. Thus the Saviour compared death to sleep. Moreover the preservation of personality and of moral immortality cannot be attributed to brutes incapable of the divine society and law.

6. No one, therefore, need fear dangerous consequences from this doctrine, since rather a true natural theology, not only not at variance with revealed truth but even wonderfully favorable to it, may be demonstrated by most beautiful reasoning from my principles. Those indeed who deny souls to brutes and all perception and organism to other parts of matter, do not sufficiently recognize the Divine Majesty, and introduce something unworthy of God, unpolished, that is, a void of perfections or forms, which you may call a metaphysical void, which is no less to be rejected than a material or physical void. But those who grant true soul and perception to brutes and yet affirm that their souls can perish naturally, take away thus from us the demonstration which shows that our minds cannot perish naturally, and fall into the dogma of the Socinians, who think that souls are preserved only miraculously or by grace, but believe that by nature they ought to perish; which is to rob natural theology of its largest part. Besides, the contrary can be completely demonstrated, since a substance wanting parts cannot naturally be destroyed.

Wolfenbüttel, June 4, 1710.

XXX.

The Theodicy.

Abridgment of the Argument reduced to syllogistic form. 1710.

[From the French.]

Some intelligent persons have desired that this supplement should be made [to the Theodicy], and I have the more readily yielded to their wishes as in this way I have an opportunity to again remove certain difficulties and to make some observations which were not sufficiently emphasized in the work itself.

I. *Objection.* Whoever does not choose the best is lacking in power, or in knowledge, or in goodness.

God did not choose the best in creating this world.

Therefore God has been lacking in power, or in knowledge, or in goodness.

Answer. I deny the minor, that is, the second premise of this syllogism; and our opponent proves it by this

Prosyllogism. Whoever makes things in which there is evil, which could have been made without any evil, or the making of which could have been omitted, does not choose the best.

God has made a world in which there is evil; a world, I say, which could have been made without any evil, or the making of which could have been omitted altogether.

Therefore God has not chosen the best.

Answer. I grant the minor of this prosyllogism; for it must be confessed that there is evil in the world which God has made, and that it was possible to make a world without evil, or even not to create a world at all, for its creation depended on the free will of God; but I deny the major, that is, the first of the two premises of the prosyllogism, and I might content myself with simply demanding its proof; but in order to make the matter clearer, I have wished to justify this denial by showing that the best plan is not always that which seeks to avoid evil, since it may happen that *the evil be accompanied by a greater good.* For example, a general of an army will prefer a great victory with a slight wound to a con-

dition without wound and without victory. We have proved this more fully in the large work by making it clear, by instances taken from mathematics and elsewhere, that an imperfection in the part may be required for a greater perfection in the whole. In this I have followed the opinion of St. Augustine, who has said a hundred times, that God permitted evil in order to bring about good, that is, a greater good; and that of Thomas Aquinas (*in libr. II. sent. dist. 32, qu. I, art. 1*), that the permitting of evil tends to the good of the universe. I have shown that the ancients called Adam's fall *felix culpa*, a happy sin, because it had been retrieved with immense advantage by the incarnation of the Son of God, who has given to the universe something nobler than anything that ever would have been among creatures except for this. And in order to a clearer understanding, I have added, following many good authors, that it was in accordance with order and the general good that God gave to certain creatures the opportunity of exercising their liberty, even when he foresaw that they would turn to evil, but which he could so well rectify; because it was not right that, in order to hinder sin, God should always act in an extraordinary manner.

To overthrow this objection, therefore, it is sufficient to show that a world with evil might be better than a world without evil; but I have gone even farther in the work, and have even proved that this universe must be in reality better than every other possible universe.

II. *Objection.* If there is more evil than good in intelligent creatures, then there is more evil than good in the whole work of God.

Now, there is more evil than good in intelligent creatures.

Therefore there is more evil than good in the whole work of God.

Answer. I deny the major and the minor of this conditional syllogism. As to the major, I do not admit it at all, because this pretended deduction from a part to the whole, from intelligent creatures to all creatures, supposes tacitly and without proof that creatures destitute of reason cannot enter into comparison nor into account with those which possess it. But why may it not be that the surplus of good in the non-intelligent creatures which fill the world, compensates for, and even incomparably surpasses, the sur-

plus of evil in the rational creatures? It is true that the value of the latter is greater; but, in compensation, the other are beyond comparison the more numerous, and it may be that the proportion of number and of quantity surpasses that of value and of quality.

As to the minor, that is no more to be admitted; that is, it is not at all to be admitted that there is more evil than good in the intelligent creatures. There is no need even of granting that there is more evil than good in the human race, because it is possible, and in fact very probable, that the glory and the perfection of the blessed are incomparably greater than the misery and the imperfection of the damned, and that here the excellence of the total good in the smaller number exceeds the total evil in the greater number. The blessed approach the Divinity, by means of the Divine Mediator, as near as may suit these creatures, and make such progress in good as is impossible for the damned to make in evil, approach as nearly as they may to the nature of demons. God is infinite, and the devil is limited; good may and does advance *ad infinitum*, while evil has its bounds. It is therefore possible, and is credible, that in the comparison of the blessed and the damned, the contrary of that which I have said might happen in the comparison of intelligent and non-intelligent creatures, takes place; namely, it is possible that in the comparison of the happy and the unhappy, the proportion of degree exceeds that of number, and that in the comparison of intelligent and non-intelligent creatures, the proportion of number is greater than that of value. I have the right to suppose that a thing is possible so long as its impossibility is not proved; and indeed that which I have here advanced is more than a supposition.

But in the second place, if I should admit that there is more evil than good in the human race, I have still good grounds for not admitting that there is more evil than good in all intelligent creatures. For there is an inconceivable number of genii, and perhaps of other rational creatures. And an opponent could not prove that in all the City of God, composed as well of genii as of rational animals without number and of an infinity of kinds, evil exceeds good. And although in order to answer an objection, there is no need of proving that a thing is, when its mere possibility suffices; yet, in this work, I have not omitted to show that it is a consequence of the supreme perfection of the Sovereign of the universe, that there

kingdom of God be the most perfect of all possible states or governments, and that consequently the little evil there is, is required for the consummation of the immense good which is there found.

III. *Objection.* If it is always impossible not to sin, it is always unjust to punish.

Now, it is always impossible not to sin; or, in other words, every sin is necessary.

Therefore, it is always unjust to punish.

The minor of this is proved thus:

1. *Prosyllogism.* All that is predetermined is necessary. Every event (and consequently sin also) is necessary.

Again this second minor is proved thus:

2. *Prosyllogism.* That which is future, that which is foreseen, that which is involved in the causes, is predetermined.

Every event is such.

Therefore, every event is predetermined.

Answer. I admit in a certain sense the conclusion of the second prosyllogism, which is the minor of the first; but I shall deny the major of the first prosyllogism, namely, that every thing predetermined is necessary; understanding by the *necessity* of sinning, for example, or by the impossibility of not sinning, or of not performing any action, the necessity with which we are here concerned, that is, that which is essential and absolute, and which destroys the morality of an action and the justice of punishments. For if anyone understood another necessity or impossibility, namely, a necessity which should be only moral, or which was only hypothetical (as will be explained shortly); it is clear that I should deny the major of the objection itself. I might content myself with this answer and demand the proof of the proposition denied; but I have again desired to explain my procedure in this work, in order to better elucidate the matter and to throw more light on the whole subject, by explaining the necessity which ought to be rejected and the determination which must take place. That *necessity* which is contrary to morality and which ought to be rejected, and which would render punishment unjust, is an insurmountable necessity which would make all opposition useless, even if we should wish with all our heart to avoid the necessary action, and should make all possible efforts to that end. Now, it is manifest that this is not applicable to voluntary actions, because we would

not perform them if we did not choose to. Also their prevision and predetermination is not absolute, but it supposes the will: if it is certain that we shall perform them, it is not less certain that we shall choose to perform them. These voluntary actions and their consequences will not take place no matter what we do or whether we wish them or not; but, *through* that which we shall do and through that which we shall wish to do, which leads to them. And this is involved in prevision and in predetermination, and even constitutes their ground. And the necessity of such an event is called conditional or hypothetical, or the necessity of consequence, because it supposes the will, and the other *requisites;* whereas the necessity which destroys morality and renders punishment unjust and reward useless, exists in things which will be whatever we may do or whatever we may wish to do, and, in a word, is in that which is essential; and this is what is called an absolute necessity. Thus it is to no purpose, as regards what is absolutely necessary, to make prohibitions or commands, to propose penalties or prizes, to praise or to blame; it will be none the less. On the other hand, in voluntary actions and in that which depends upon them, precepts armed with power to punish and to recompense are very often of use and are included in the order of causes which make an action exist. And it is for this reason that not only cares and labors but also prayers are useful; God having had these prayers in view before he regulated things and having had that consideration for them which was proper. This is why the precept which says *ora et labora* (pray and work), holds altogether good; and not only those who (under the vain pretext of the necessity of events) pretend that the care which business demands may be neglected, but also those who reason against prayer, fall into what the ancients even then called the *lazy sophism*. Thus the predetermination of events by causes is just what contributes to morality instead of destroying it, and causes incline the will, without compelling it. This is why the *determination* in question is not a necessitation—it is certain (to him who knows all) that the effect will follow this inclination; but this effect does not follow by a necessary consequence, that is, one the contrary of which implies contradiction. It is also by an internal inclination such as this that the will is determined, without there being any necessity. Suppose that one has the greatest passion in the world (a great thirst, for example),

you will admit to me that the soul can find some reason for resisting it, if it were only that of showing its power. Thus, although one may never be in a perfect indifference of equilibrium and there may be always a preponderance of inclination for the side taken, it, nevertheless, never renders the resolution taken absolutely necessary.

IV. *Objection.* Whoever can prevent the sin of another and does not do so, but rather contributes to it although he is well informed of it, is accessory to it.

God can prevent the sin of intelligent creatures; but he does not do so, and rather contributes to it by his concurrence and by the opportunities which he brings about, although he has a perfect knowledge of it.

Hence, etc.

Answer. I deny the major of this syllogism. For it is possible that one could prevent sin, but ought not, because he could not do it without himself committing a sin, or (when God is in question) without performing an unreasonable action. Examples have been given and the application to God himself has been made. It is possible also that we contribute to evil and that sometimes we even open the road to it, in doing things which we are obliged to do; and, when we do our duty or (in speaking of God) when, after thorough consideration, we do that which reason demands, we are not responsible for the results, even when we foresee them. We do not desire these evils; but we are willing to permit them for the sake of a greater good which we cannot reasonably help preferring to other considerations, and it is a *consequent* will, which results from *antecedent* wills, by which we will the good. I know that some persons, in speaking of the antecedent and consequent will of God, have understood by the *antecedent* that which wills that all men should be saved; and by the *consequent*, that which wills, in consequence of persistent sin, that they should be damned. But these are merely illustrations of a more general idea, and it may be said for the same reason that God, by his antecedent will, wills that men should not sin; and by his consequent or final and decreeing will (that which is always followed by its effect), he wills to permit them to sin, this permission being the result of superior reasons. And we have the right to say in general that the antecedent will of God tends to the production of good and the

prevention of evil, each taken in itself and as if alone (*particulariter et secundum quid*, Thom. I, qu. 19, art. 6), according to the measure of the degree of each good and of each evil; but that the divine consequent or final or total will tends toward the production of as many goods as may be put together, the combination of which becomes in this way determined, and includes also the permission of some evils and the exclusion of some goods, as the best possible plan for the universe demands. Arminius, in his *Anti-perkinsus*, has very well explained that the will of God may be called consequent, not only in relation to the action of the creatures considered beforehand in the divine understanding, but also in relation to other anterior acts of will. But this consideration of the passage cited from Thomas Aquinas, and that from Scotus (I. dist. 46, qu. XI), is enough to show that they make this distinction as I have done here. Nevertheless, if anyone objects to this use of terms let him substitute *deliberating* will, in place of antecedent, and *final* or decreeing will, in place of consequent. For I do not wish to dispute over words.

V. *Objection*. Whatever produces all that is real in a thing, is its cause.

God produces all that is real in sin. Hence, God is the cause of sin.

Answer. I might content myself with denying the major or the minor, since the term *real* admits of interpretations which would render these premises false. But in order to explain more clearly, I will make a distinction. *Real* signifies either that which is positive only, or, it includes also privative beings: in the first case, I deny the major and admit the minor; in the second case, I do the contrary. I might have limited myself to this, but I have chosen to proceed still farther and give the reason for this distinction. I have been very glad therefore to draw attention to the fact that every reality purely positive or absolute is a perfection; and that imperfection comes from limitation, that is, from the privative: for to limit is to refuse progress, or the greatest possible progress. Now God is the cause of all perfections and consequently of all realities considered as purely positive. But limitations or privations result from the imperfection of creatures, limiting their receptivity. And it is with them as with a loaded vessel which the river causes to move more or less slowly according to the weight

which it carries: thus its speed depends upon the river, but the retardation which limits this speed comes from the load. Thus in the *Theodicy*, we have shown how the creature, in causing sin, is a defective cause; how errors and evil inclinations are born of privation; and how privation is accidentally efficient; and I have justified the opinion of St. Augustine (lib. I. ad Simpl. qu. 2) who explains, for example, how God makes the soul obdurate, not by giving it something evil, but because the effect of his good impression is limited by the soul's resistance and by the circumstances which contribute to this resistance, so that he does not give it all the good which would overcome its evil. *Nec, inquit, ab illo erogatur aliquid quo homo fit deterior, sed tantum quo fit melior non erogatur.* But if God had wished to do more, he would have had to make either other natures for creatures or other miracles to change their natures, things which the best plan could not admit. It is as if the current of the river must be more rapid than its fall admitted or that the boats should be loaded more lightly, if it were necessary to make them move more quickly. And the original limitation or imperfection of creatures requires that even the best plan of the universe could not be exempt from certain evils, but only those moreover, which are to result in a greater good. There are certain disorders in the parts which marvellously enhance the beauty of the whole; just as certain dissonances, when properly used, render the harmony more beautiful. But this depends on what has already been said in answer to the first objection.

VI. *Objection.* He who punishes those who have done as well as it was in their power to do, is unjust.

God does so,

Hence, etc.

Answer. I deny the minor of this argument and I believe that God always gives sufficient aid and grace to those who have a good will, that is, to those who do not reject this grace by new sin. Thus I do not admit the damnation of infants who have died without baptism or outside of the church; nor the damnation of adults who have acted according to the light which God has given them. And I believe that if *any one has followed the light which has been given him*, he will undoubtedly receive greater light when he has need of it, as the late M. Hulseman, a profound and celebrated theologian at Leipsic, has somewhere remarked; and if such a man

has failed to receive it during his life time he will at least receive it when at the point of death.

VII. *Objection.* He who gives only to some, and not to all, the means which produce in them effectively a good will and salutary final faith, has not sufficient goodness.

God does this.

Hence, etc.

Answer. I deny the major of this. It is true that God could overcome the greatest resistance of the human heart; and does it, too, sometimes, be it by internal grace, be it by external circumstances which have a great effect on souls; but he does not always do this. Whence comes this distinction? it may be asked, and why does his goodness seem limited? It is because, as I have already said in answering the first objection, it would not have been in order always to act in an extraordinary manner, and to reverse the connection of things. The reasons of this connection, by means of which one is placed in more favorable circumstances than another, are hidden in the depths of the wisdom of God; they depend upon the universal harmony. The best plan of the universe, which God could not fail to choose, made it so. We judge from the event itself, since God has made it, that it was not possible to do better. Far from being true that this conduct is contrary to goodness, it is supreme goodness which led him to it. This objection with its solution might have been drawn from what was said in regard to the first objection; but it seemed useful to touch upon it separately.

VIII. *Objection.* He who cannot fail to choose the best, is not free.

God cannot fail to choose the best.

Hence, God is not free.

Answer. I deny the major of this argument; it is rather true liberty and the most perfect, to be able to use one's free will for the best, and to always exercise this power without ever being turned from it either by external force or by internal passions, the first of which causes slavery of the body, the second, slavery of the soul. There is nothing less servile than to be always led toward the good, and always by one's own inclination, without any constraint and without any displeasure. And to object therefore that God had need of external things, is only a sophism. He created them freely; but having proposed to himself an end, which

is to exercise his goodness, wisdom determined him to choose those means best fitted to attain this end. To call this a *need* is to take that term in an unusual sense which frees it from all imperfection, just as when we speak of the wrath of God.

Seneca has somewhere said that God commanded but once but that he obeys always, because he obeys laws which he willed to prescribe to himself; *semel jussit, semper paret.* But he had better have said that God always commands and that he is always obeyed; for in willing, he always follows the inclination of his own nature, and all other things always follow his will. And as this will is always the same, it cannot be said that he obeys only that will which he formerly had. Nevertheless, although his will is always infallible and always tends toward the best, the evil, or the lesser good, which he rejects, does not cease to be possible in itself; otherwise the necessity of the good would be geometrical (so to speak), or metaphysical and altogether absolute; the contingency of things would be destroyed, and there would be no choice. But this sort of necessity, which does not destroy the possibility of the contrary, has this name only by analogy; it becomes effective, not by the pure essence of things, but by that which is outside of them, above them,—namely, by the will of God. This necessity is called moral, because, to the sage, *necessity* and *what ought to be* are equivalent things; and when it always has its effect, as it really has in the perfect sage, that is, in God, it may be said that it is a happy necessity. The nearer creatures approach to it, the nearer they approach to perfect happiness. Also this kind of necessity is not that which we try to avoid and which destroys morality, rewards and praise. For that which it brings, does not happen whatever we may do or will, but because we will it well. And a will to which it is natural to choose well, merits praise so much the more; also it carries its reward with it, which is sovereign happiness. And as this constitution of the divine nature gives entire satisfaction to him who possesses it, it is also the best and the most desirable for the creatures who are all dependent on God. If the will of God did not have for a rule the principle of the best, it would either tend toward evil, which would be the worst; or it would be in some way indifferent to good and to evil, and would be guided by chance: but a will which would allow itself always to act by chance, would not be worth more for the government of the universe than the fortuitous

concourse of atoms, without there being any divinity therein. And even if God should abandon himself to chance only in some cases and in a certain way (as he would do, if he did not always work towards the best and if he were capable of preferring a lesser good to a greater, that is, an evil to a good, since that which prevents a greater good is an evil), he would be imperfect, as well as the object of his choice; he would not merit entire confidence; he would act without reason in such a case, and the government of the universe would be like certain games, equally divided between reason and chance. All this proves that this objection which is made against the choice of the best, perverts the notions of the free and of the necessary, and represents to us even the best as evil; to do which is either malicious or ridiculous.

XXXI.

On Wisdom—The Art of Reasoning Well, the Art of Discovery, the Art of Remembering.

[From the French.]

Wisdom is a perfect knowledge of the principles of all the sciences and of the art of applying them. I call *principles* all the fundamental truths which suffice for drawing thence all conclusions in case of need, after some exercise and with some little application. In a word, that which serves to lead the mind to regulate the manners, to subsist honestly, and everywhere, even if one were amid barbarians, to preserve the health, to perfect one's self in every kind of thing of which one may have need, and to provide, finally, the conveniences of life. The art of applying these principles to exigencies, embraces the art of judging well or reasoning, the art of discovering unknown truths, and finally, of remembering what one knows, in the nick of time and when one has need of it.

The Art of Reasoning Well consists in the following maxims:

1. Nothing is ever to be recognized as true but what is so manifest that no ground for doubt can be found. This is why it will be well, in beginning one's investigations, to imagine one's self interested in sustaining the contrary, in order to see if this incitement could not arouse one to find that the matter has something solid to be said in its favor. For prejudices must be avoided and nothing be ascribed to things but what they include. But also one must never be opinionated.

2. When there appears to be no means of attaining this assurance, we must, in waiting for greater light, content ourselves with probability. But we must distinguish the degrees of probability and we must remember that all that we infer from a principle which is but probable must bear the marks of the imperfection of its source, especially when several probabilities must be supposed in order to reach this conclusion, for it thereby becomes still less certain than was each probability which serves it as basis.

3. To infer one truth from another, a certain connection, which shall be without interruption, must be observed. For as one may

feel sure that a chain will hold when he is assured that each separate link is of good material and that it clasps the two neighboring links, viz: the one preceding and the one following it, so we may be sure of the accuracy of the reasoning when the matter is good, that is to say, when nothing doubtful enters into it, and when the form consists in a perpetual concatenation of truths which allows of no gap. For example, A is B and B is C and C is D, hence A is D. This concatenation will always teach us never to put in the conclusion more than there was in the premises.

The Art of Discovery consists in the following maxims:

1. In order to know a thing we must consider all the requisites of that thing, that is to say, all that which suffices to distinguish it from every other thing. This is what is called definition, nature, reciprocal property.

2. Having once found a means of distinguishing it from every other thing, this same first rule must be applied to the consideration of each condition or requisite which enters into this means, and all the requisites of each requisite must be considered. And this is what I call true *analysis* or distribution of the difficulty into several parts.

3. When we have pushed the analysis to the end, that is to say, when we have considered the requisites which enter into the consideration of the thing proposed and even the requisites of the requisites, and when we have finally come to the consideration of some natures which are understood only through themselves, which are without requisites and which need nothing outside of themselves in order to be conceived, we have reached a perfect knowledge of the thing proposed.

4. When the thing deserves it, we must try to have this perfect knowledge present in the mind all at once, and this is done by repeating the analysis several times until it seems to us that we see the whole of it at a single glance of the mind. And for this result a certain gradation in repetition must be observed.

5. The mark of perfect knowledge is when nothing presents itself in the thing in question for which we cannot account and when there is no conjuncture the outcome of which we cannot predict beforehand. It is very difficult to carry through an analysis of things, but it is not so difficult to complete the analysis of truths of which we have need. Because the analysis of a truth

is completed when its demonstration has been found, and it is not always necessary to complete the analysis of the subject or predicate in order to find the demonstration of a proposition. Most often the beginning of the analysis of a thing suffices for the analysis or perfect knowledge of the truth which we know of the thing.

6. We must always begin our investigations with the easiest thing, such as the most general and the simplest, likewise those on which it is easy to make experiments and to find their reason, such as numbers, lines, motions.

7. We must proceed in order, and from easy things to those which are difficult, and we must try to discover some progression in the order of our meditations, so that we may have nature itself as our guide and voucher.

8. We must try to omit nothing in all our distributions or enumerations. For this, dichotomies by opposite members are very useful.

9. The first of several analyses of different particular matters will be the catalogue of simple thoughts, or those which are not far removed from simple.

10. Having the catalogue of simple thoughts we shall be in position to recommence *a priori* and to explain the origin of things, beginning at their source, in a perfect order and in a combination or synthesis absolutely complete. And this is all that our mind can do in the state in which it is at present.

The Art of Remembering in the nick of time and when it is needed what one knows, consists in the following observations:

1. We must accustom ourselves to be present-minded, that is to say, to be able to meditate just as well in a tumult, on occasion, and in danger, as in our cabinet. This is why we must test ourselves on occasions and even seek them; with this precaution, however, that we do not expose ourselves without good reason to irreparable evil. In the meanwhile it is good to exercise ourselves on occasions when the danger is imaginary or small, as in our sport, conversations, conferences, exercises, and comedies.

2. We must accustom ourselves to enumerations. This is why it is well to exercise ourselves in collecting all possible cases of the matter in question, all the species of a genus, all the conveniences or inconveniences of a means, all possible ways of aiming at some end.

3. We must accustom ourselves to distinctions; namely, two or more very similar things being given, to find on the spot all their differences.

4. We must accustom ourselves to analogies; namely, two or more very different things being given to find their resemblances.

5. We must be able to adduce on the spot things which closely resemble the given thing or which are very different from it. For example, when one denies some general maxim, it is well if I can adduce on the spot some examples. And when another quotes some maxim against me, it is well if I can forthwith oppose an instance to him. When one tells me a story, it is well if I can adduce then and there a similar one.

6. When there are truths or knowledges in which the natural connection of the subject with its predicate is not known to us, as happens in matters of fact and in truths of experience, in order to retain them we must make use of certain artifices, as for example, for the specific properties of simple, natural, civil and ecclesiastical history, geography, customs, laws, canons, languages. I see nothing so fitted to make us retain these things as burlesque verses and sometimes certain figures; also hypotheses invented to explain them in imitation of natural things (as an appropriate etymology, true or false, for languages—Regula mundi, in imagining certain orders of providence for history).

7. Finally, it is well to make an *inventory* in writing of the knowledges which are the most useful, with a register or alphabetical table. And finally a portable *manual* must be drawn therefrom of what is most necessary and most ordinary.

XXXII.

The Principles of Nature and of Grace. 1714.

[From the French.]

1. *Substance* is being, capable of action. It is simple or compound. *Simple substance* is that which has no parts. *Compound* substance is a collection of simple substances or *monads*. *Monas* is a Greek word which signifies unity, or that which is one.

Compounds, or bodies, are multitudes; and simple substances, lives, souls, spirits are unities. And there must be simple substances everywhere, because without simple substances there would be no compounds; and consequently all nature is full of life.

2. Monads, having no parts, cannot be formed or decomposed. They cannot begin or end naturally; and consequently last as long as the universe, which will indeed be changed but will not be destroyed. They cannot have shapes; otherwise they would have parts. And consequently a monad, in itself and at a given moment, could not be distinguished from another except by its internal qualities and actions, which can be nothing else than its *perceptions* (that is, representations of the compound, or of what is external, in the simple), and its *appetitions* (that is, its tendencies from one perception to another), which are the principles of change. For the simplicity of substance does not prevent multiplicity of modifications, which must be found together in this same simple substance, and must consist in the variety of relations to things which are external. Just as in a centre or point, altogether simple as it is, there is found an infinity of angles formed by lines which there meet.

3. Everything in nature is full. There are everywhere simple substances, separated in reality from each other by activities of their own which continually change their relations; and each simple substance, or monad, which forms the centre of a compound substance (as, for example, of an animal) and the principle of its unity, is surrounded by a mass composed of an infinity of other monads, which constitute the body proper of this central monad; and in accordance with the affections of this it represents, as a *centre*, the things which are outside of itself. And this *body* is *or-*

ganic, when it forms a sort of automaton or natural machine; which is a machine not only in its entirety, but also in its smallest perceptible parts. And as, because of the plenitude of the world, everything is connected and each body acts upon every other body, more or less according to the distance, and by reaction is itself affected thereby; it follows that each monad is a mirror, living or endowed with internal activity, representative according to its point of view of the universe, and as regulated as the universe itself. And perceptions in the monad spring one from the other, by the law of appetites or by the *final causes of good and evil*, which consist in visible, regulated or unregulated perceptions; just as the changes of bodies and external phenomena spring one from another, by the laws of *efficient causes*, that is, of movements. Thus there is perfect *harmony* between the perceptions of the monad and the movements of bodies, established at the beginning between the system of efficient causes and that of final causes. And in this consists the accord and physical union of the soul and body, although neither one can change the laws of the other.

4. Each monad, with a particular body, makes a living substance. Thus there is not only life everywhere, provided with members or organs, but also there is an infinity of degrees in monads, some dominating more or less over the others. But when the monad has organs so adjusted that by means of them there is clearness and distinctness in the impressions which it receives and consequently in the perceptions which represent them (as, for example, when by means of the shape of the humors of the eyes, the rays of light are concentrated and act with more force); this can extend even to *feeling* [*sentiment*], that is, even to a perception accompanied by *memory*, that is, one a certain echo of which remains a long time to make itself heard upon occasion; and such a living being is called an *animal*, as its monad is called a soul. And when this soul is elevated to *reason* it is something more sublime and is reckoned among spirits, as will soon be explained.

It is true that animals are sometimes in the condition of simple living beings, and their souls in the condition of simple monads, namely, when their perceptions are not sufficiently distinct to be remembered, as happens in a profound, dreamless sleep, or in a swoon. But perceptions which have become entirely confused must be re-developed in animals, for reasons which I shall shortly (§ 12)

enumerate. Therefore it is well to make a distinction between the *perception*, which is the internal condition of the monad representing external things, and *apperception*, which is *consciousness* or the reflective knowledge of this internal state; the latter not being given to all souls, nor at all times to the same soul. And it is for want of this distinction that the Cartesians have failed, taking no account of the perceptions of which we are not conscious as people take no account of imperceptible bodies. It is this also which made the same Cartesians believe that only spirits are monads, that there is no soul of brutes, and still less other *principles of life.*

And as they shocked too much the common opinion of men by refusing feeling to brutes, they have, on the other hand, accommodated themselves too much to the prejudices of the multitude, by confounding a *long swoon*, caused by a great confusion of perceptions, with *death strictly speaking*, where all perception would cease. This confirmed the ill-founded belief in the destruction of some souls, and the bad opinion of some so-called strong minds, who have contended against the immortality of our soul.

5. There is a continuity in the perceptions of animals which bears some resemblance to reason; but it is only founded in the memory of *facts*, and not at all in the knowledge of *causes.* Thus a dog shuns the stick with which it has been beaten, because memory represents to it the pain which the stick has caused it. And men in so far as they are empirics, that is to say, in three-fourths of their actions, act simply as brutes. For example, we expect that there will be daylight to-morrow, because we have always had the experience; only an astronomer foresees it by reason, and even this prediction will finally fail when the cause of day, which is not eternal, shall cease. But *true reasoning* depends upon necessary or eternal truths, such as those of logic, numbers, geometry, which establish an indubitable connection of ideas and unfailing consequences. The animals in which these consequences are not noticed, are called *brutes;* but those which know these necessary truths are properly those which are called *rational animals*, and their souls are called *spirits.* These souls are capable of performing acts of reflection, and of considering that which is called the *ego*, *substance*, *monad*, *soul*, *spirit*, in a word, immaterial things and truths. It is this which renders us capable of the sciences and of demonstrative knowledge.

6. Modern researches have taught us, and reason approves of it, that living beings whose organs are known to us, that is to say, plants and animals, do not come from putrefaction or from chaos, as the ancients believed, but from *pre-formed* seeds, and consequently by the transformation of pre-existing living beings. There are animalcules in the seeds of large animals, which by means of conception assume a new dress which they make their own and by means of which they can nourish themselves and increase their size, in order to pass to a larger theatre and to accomplish the propagation of the large animal. It is true that the souls of spermatic human animals are not rational and do not become so until conception determines these animals to the human nature. And as generally animals are not born altogether in conception or *generation*, neither do they perish altogether in what we call *death ;* for it is reasonable that what does not begin naturally, should not end either in the order of nature. Therefore, quitting their mask or their rags, they merely return to a more subtile theatre where they can, nevertheless, be just as sensitive and just as well regulated as in the larger. And what we have just said of large animals, takes place also in the generation and death of smaller spermatic animals, in comparison with which the former may pass for large ; for everything extends *ad infinitum* in nature.

Thus not only souls, but also animals, are ingenerable and imperishable : they are only developed, unfolded, reclothed, unclothed, transformed : souls never quit their entire body and do not pass from one body into another which is entirely new to them.

There is therefore no *metempsychosis*, but there is *metamorphosis ;* animals change, take and leave only parts : the same thing which happens little by little and by small invisible particles but continually in nutrition, and suddenly, visibly but rarely in conception or death, which cause a gain or loss of everything at one time.

7. Up to this time we have spoken as simple *physicists :* now we must advance to *metaphysics* by making use of the *great principle*, little employed in general, which teaches that *nothing happens without a sufficient reason ;* that is to say, that nothing happens without its being possible for him who should sufficiently understand things, to give a reason sufficient to determine why it is so and not otherwise. This principle laid down, the first question

which should rightly be asked, would be, *Why is there something rather than nothing?* For nothing is simpler and easier than something. Further, suppose that things must exist, we must be able to give a reason *why they must exist so* and not otherwise.

8. Now this sufficient reason for the existence of the universe could not be found *in the series of contingent things*, that is, of bodies and of their representations in souls; for matter being indifferent in itself to motion and to rest and to this or another motion, we could not find the reason of motion in it, and still less of a certain motion. And although the present motion which is in matter, comes from the preceding motion, and that from still another preceding, yet in this way we should never make any progress, go as far as we might; for the same question would always remain.

Therefore it must be that the sufficient reason which has no need of another reason, be outside this series of contingent things and be found in a substance which is its cause, or which is a necessary being, carrying the reason of its existence within itself; otherwise we should still not have a sufficient reason in which we could rest. And this final reason of things is called *God.*

9. This simple primitive substance must contain in itself eminently the perfections contained in the derivative substances which are its effects; thus it will have perfect power, knowledge and will: that is, it will have omnipotence and sovereign goodness. And as *justice*, taken generally, is only goodness conformed to wisdom, there must too be sovereign justice in God. The reason which has caused things to exist by him, makes them still dependent upon him in existing and in working: and they are continually receiving from him that which gives them some perfection; but the imperfection which remains in them, comes from the essential and original limitation of the creature.

10. It follows from the supreme perfection of God, that in creating the universe he has chosen the best possible plan, in which there is the greatest variety together with the greatest order; the best arranged ground, place, time; the most results produced in the most simple ways; the most of power, knowledge, happiness and goodness in the creatures that the universe could permit. For since all the possibles in the understanding of God laid claim to existence in proportion to their perfections, the actual world, as the

resultant of all these claims, must be the most perfect possible. And without this it would not be possible to give a reason why things have turned out so rather than otherwise.

11. The supreme wisdom of God compelled him to choose the *laws of movement* best adjusted and most suited to abstract or metaphysical reasons. He preserves there the same quantity of total and absolute force, or of actions; the same quantity of respective force or of reaction; lastly the same quantity of directive force. Farther, action is always equal to reaction, and the whole effect is always equivalent to the full cause. And it is not surprising that we could not by the mere consideration of the *efficient causes* or of matter, account for those laws of movement which have been discovered in our time, and a part of which have been discovered by myself. For I have found that it was necessary to have recourse to *final causes*, and that these laws do not depend upon the *principle of necessity*, like logical, arithmetical and geometrical truths, but upon the *principle of fitness*, that is, upon the choice of wisdom. And this is one of the most efficacious and evident proofs of the existence of God, to those who can examine these matters thoroughly.

12. It follows, farther, from the perfection of the supreme author, that not only is the order of the entire universe the most perfect possible, but also that each living mirror representing the universe in accordance with its point of view, that is to say, that each *monad*, each *substantial centre*, must have its perceptions and its desires as well regulated as is compatible with all the rest. Whence it follows, still farther, that *souls*, that is, the most dominating monads, or rather, animals, cannot fail to awaken from the state of stupor in which death or some other accident may put them.

13. For everything in things is regulated once for all with as much order and harmony as is possible, supreme wisdom and goodness not being able to act except with perfect harmony. The present is big with the future, the future could be read in the past, the distant is expressed in the near. One could become acquainted with the beauty of the universe in each soul, if one could unfold all its folds, which only develop visibly in time. But as each distinct perception of the soul includes innumerable confused perceptions which comprise the whole universe, the soul itself knows the

things of which it has perception only so far as it has distinct and clear perceptions of them.

Each soul knows the infinite, knows all, but confusedly. As in walking on the sea-shore and hearing the great noise which it makes, I hear the individual sounds of each wave, of which the total sound is composed, but without distinguishing them; so our confused perceptions are the result of the impressions which the whole universe makes upon us. It is the same with each monad. God alone has a distinct consciousness of everything, for he is the source of all. It has been well said that he is as centre everywhere, but that his circumference is nowhere, since without any withdrawal from this centre, everything is immediately present to him.

14. As regards the rational soul, or *spirit*, there is something in it more than in the monads, or even in simple souls. It is not only a mirror of the universe of creatures, but also an image of the Divinity. The *spirit* has not only a perception of the works of God, but it is even capable of producing something which resembles them, although in miniature. For, to say nothing of the marvels of dreams where we invent without trouble, and even involuntarily, things which when awake we should have to think a long time in order to hit upon, our soul is architectonic in its voluntary actions also, and, discovering the sciences according to which God has regulated things (*pondere*, *mensura*, *numero*, etc.), it imitates, in its department and in the little world where it is permitted to exercise itself, what God does in the large world.

15. This is why all spirits, whether of men or of genii, entering by virtue of reason and of the eternal truths into a sort of society with God, are members of the City of God, that is to say, of the most perfect state, formed and governed by the greatest and best of monarchs; where there is no crime without punishment, no good actions without proportionate recompense; and finally as much virtue and happiness as is possible; and this is not by a derangement of nature, as if what God prepares for souls disturbed the laws of bodies, but by the very order of natural things, in virtue of the harmony pre-established for all time between the *realms of nature and of grace*, between God as Architect and God as Monarch; so that *nature* leads to grace and *grace*, while making use of nature, perfects it.

16. Thus although reason cannot teach us the details, reserved to Revelation, of the great future, we can be assured by this same reason that things are made in a manner surpassing our desires. God also being the most perfect and most happy, and consequently, the most lovable of substances, and *truly pure love* consisting in the state which finds pleasure in the perfections and happiness of the loved object, this love ought to give us the greatest pleasure of which we are capable, when God is its object.

17. And it is easy to love him as we ought, if we know him as I have just described. For although God is not visible to our external senses, he does not cease to be very lovable and to give very great pleasure. We see how much pleasure honors give men, although they do not at all consist in the qualities of the external senses.

Martyrs and fanatics (although the affection of the latter is ill-regulated), show what pleasure of the spirit can accomplish; and what is more, even sensuous pleasures are reduced to confusedly known intellectual pleasures.

Music charms us, although its beauty only consists in the harmony of numbers and in the reckoning of the beats or vibrations of sounding bodies, which meet at certain intervals, of which we are not conscious and which the soul does not cease to make. The pleasures which sight finds in proportions are of the same nature; and those caused by the other senses amount to almost the same thing, although we cannot explain it so clearly.

18. It may be said that even from the present time on, the *love of God* makes us enjoy a foretaste of future felicity. And although it is disinterested, it itself constitutes our greatest good and interest even if we should not seek it therein and should consider only the pleasure which it gives, without regard to the utility it produces; for it gives us perfect confidence in the goodness of our author and master, producing a true tranquillity of mind; not like the Stoics who force themselves to patience, but by a present content which assures us of future happiness. And besides the present pleasure, nothing can be more useful for the future; for the love of God fulfills our hopes, too, and leads us in the road of supreme happiness, because by virtue of the perfect order established in the universe, everything is done in the best possible way, as much for the general good as for the greatest individual good of those who are convinced

of this and are content with the divine government; this conviction cannot be wanting to those who know how to love the source of all good. It is true that supreme felicity, by whatever *beatific vision* or knowledge of God it be accompanied, can never be full; because, since God is infinite, he cannot be wholly known. Therefore our happiness will never, and ought not, consist in full joy, where there would be nothing farther to desire, rendering our mind stupid; but in a perpetual progress to new pleasures and to new perfections.

XXXIII.

The Monadology. 1714.

[From the French.]

1. The *monad* of which we shall here speak is merely a simple substance, which enters into compounds; *simple*, that is to say, without parts.*

2. And there must be simple substances, since there are compound substances, for the compound is only a collection or *aggregatum* of simple substances.

3. Now where there are no parts, neither extension, figure nor divisibility is possible. And these monads are the true atoms of nature, and, in a word, the elements of things.

4. Dissolution also is not at all to be feared, and there is no conceivable way in which a simple substance can perish naturally.†

5. For the same reason there is no way in which a simple substance can begin naturally, since it cannot be formed by composition.

6. Thus it may be said that the monads can only begin or end *all at once*, that is to say, they can only begin by creation and end by annihilation; whereas that which is compound begins or ends by parts.

7. There is also no way of explaining how a monad can be altered or changed internally by any other creature, for nothing can be transposed within it, nor can there be conceived in it any internal movement which can be excited, directed, augmented or diminished within it as can be done in compounds, where there is change among the parts. The monads have no windows through which anything can enter or depart. The *accidents* cannot detach themselves or go forth from the substances, as did formerly the *sensible species* of the Schoolmen. Likewise neither substance nor accident can enter a monad from without.

8. Nevertheless, the monads must have some qualities, otherwise they would not even be entities. And if simple substances did not differ at all in their qualities there would be no way of perceiving any changes in things, since what is in the compound can only

* Theodicée, § 10. † § 89.

come from the simple ingredients, and if the monads were without qualities they could not be distinguished the one from the other, since also they do not differ in quantity. Consequently, a plenum being supposed, each place in any movement could receive only the equivalent of what it had had before, and one state of things would not be distinguishable from another.

9. Moreover it is necessary that each monad should differ from every other. For never in nature are two beings exactly alike and such that it is not possible to find an internal difference or one founded upon an intrinsic connotation.

10. I take it also for granted that every created being, and consequently the created monad also, is subject to change, and even that this change is continual in each.

11. It follows from what has just been said, that the natural changes of the monads proceed from an *internal principle*, since an external cause could not influence their interior.*

12. But besides the principle of change, there must be *a detail of that which changes*, which forms, so to speak, the specification and variety of the simple substances.

13. This detail must involve multitude in the unity or in the simple. For since every natural change is made by degrees, something changes and something remains; consequently, there must be in the simple substance a plurality of affections and of relations, although not of parts.

14. The transient state, which involves and represents multitude in unity or in the simple substance, is only what we call *perception*, which must be distinguished from apperception or from consciousness, as will appear in what follows. Here it is that the Cartesians especially failed, having made no account of the perceptions of which we are not conscious. It is this also which made them suppose that spirits only are monads and that there are no souls of brutes or of other entelechies. They, with the vulgar, have also confounded a long state of unconsciousness [*étourdissement*] with death strictly speaking, and have therefore agreed with the old scholastic prejudice of entirely separate souls, and have even confirmed weaker minds in their belief in the mortality of the soul.

15. The action of the internal principle which causes the change or the passage from one perception to another, may be called *appeti-*

* §§ 396 and 400.

tion; it is true that the desire cannot always completely attain to the whole perception toward which it tends, but it always attains to something of it and arrives at new perceptions.

16. We experience in ourselves multitude in a simple substance, when we find that the most trifling thought of which we are conscious involves variety in the object. Thus all those who admit that the soul is a simple substance must also admit this multitude in the monad, and M. Bayle ought not to find in it the difficulties which he mentions in his Dictionary, article *Rorarius*.

17. We must confess, moreover, that *perception* and that which depends on it *are inexplicable by mechanical causes*, that is, by figures and motions. And, supposing that there were a machine so constructed as to cause thought, feeling and perception, we could conceive of it as enlarged and yet preserving the same proportions, so that we might enter it like a mill. And this granted, we should only find on visiting it, pieces which push one against another, but never any thing by which to explain a perception. It must be sought for, therefore, in the simple substance and not in the compound or machine. Nothing but this, also, can be found in the simple substance; and it is in this alone that all the *internal actions* of simple substances consist.*

18. The name of *entelechies* might be given to all simple substances or created monads, for they have within themselves a certain perfection (ἔχουσι τὸ ἐντελές); there is a certain sufficiency (αὐτάρκεια) which renders them the sources of their internal actions, and so to speak, incorporeal automata.†

19. If we choose to give the name *soul* to everything that has *perceptions* and *desires* in the general sense which I have just explained, all simple substances or created monads may be called souls, but as feeling is something more than a simple perception, I consent that the general name of monads or entelechies shall suffice for those simple substances which have only perception, and that only those substances shall be called *souls* whose perception is more distinct and is accompanied by memory.

20. For we experience in ourselves a state in which we remember nothing and have no distinguishable perceptions, as, for instance, when we fall in unconsciousness or when we are overpowered by a profound and dreamless sleep. In this state the soul does not differ

* Preface, p. 87. †§ 87.

sensibly from a simple monad: but as this state is not continuous and as the soul frees itself from it, it is something more than a mere monad.*

21. And it does not at all follow that therefore the simple substance is without any perception. This is indeed impossible, for the reasons mentioned above: for it cannot perish, nor can it subsist without some affection, which is nothing else than perception: but when there is a great number of minute perceptions, where nothing is distinct, we are stunned, as when we turn continually in the same direction many times in succession, whence arises a dizziness which may make us lose consciousness, and which does not allow us to see anything distinctly. So death may for a time produce this condition in animals.

22. And as every present state of a simple substance is naturally the consequence of its preceding state, so its present is big with its future.†

23. Therefore, since on being awakened from a stupor, we are aware of our perceptions, we must have had them immediately before although we were entirely unconscious of them: for one perception can only come naturally from another perception as one motion can only come naturally from another motion.‡

24. From this we see that if there were nothing distinct, nothing, so to speak, in relief and of a higher flavor, in our perceptions, we should always be in a dazed state. This is the condition of the naked monad.

25. So also we see that nature has given to animals higher perceptions, by the pains she has taken to furnish them with organs which collect many rays of light or many undulations of air, in order to render them more efficacious by their union. There is something of the same kind in odor, in taste, in touch and perhaps in a multitude of other senses which are unknown to us. I shall presently explain how that which takes place in the soul represents that which occurs in the organs.

26. Memory furnishes souls with a sort of *consecutiveness* which imitates reason, but which ought to be distinguished from it. We observe that animals, having the perception of something which strikes them and of which they have had a similar perception before, expect, through the representations of their memory, that

* § 64. † § 360. ‡ §§ 401 to 403.

which was associated with it in the preceding perception, and experience feelings similar to those which they had had at that time. For instance, if we show dogs a stick, they remember the pain it has caused them and whine and run.*

27. And the powerful imagination which strikes and moves them, arises either from the magnitude or the multitude of preceding perceptions. For often a strong impression produces all at once the effect of a long continued *habit*, or of many times repeated moderate perceptions.

28. Men act like the brutes in so far as that the consecutiveness of their perceptions only results from the principle of memory, resembling the empirical physicians who practice without theory, and we are simple empirics in three-fourths of our actions. For example, when we expect that there will be daylight to-morrow, we are acting as empirics, because that has up to this time always taken place. It is only the astronomer who judges of this by reason.

29. But the knowledge of necessary and eternal truths is what distinguishes us from mere animals and furnishes us with *reason* and the sciences, by raising us to a knowledge of ourselves and of God. This is what we call the reasonable soul or *spirit* within us.

30. It is also by the knowledge of necessary truths, and by their abstractions, that we rise to *acts of reflection*, which make us think of that which calls itself "*I*," and consider that this or that is within *us;* and it is thus that, in thinking of ourselves, we think of being, of substance, simple or compound, of the immaterial and of God himself, conceiving that what with us is limited is with him without limit. These reflective acts furnish the principal objects of our reasonings.†

31. Our reasonings are founded on *two great principles, that of contradiction*, by virtue of which we judge that to be *false* which involves it, and that *true*, which is opposed or contradictory to the false.‡

32. And *that of the sufficient reason*, by virtue of which we consider that no fact can be real or existent, no statement true, unless there be a sufficient reason why it is so and not otherwise, although most often these reasons cannot be known to us.‖

*Prelim., § 65. †Pref., p. 27. ‡§§ 44, 169. ‖§§ 44, 196.

33. There are also two kinds of *truths*, those of *reasoning* and those of *fact*. Truths of reasoning are necessary and their opposite is impossible, and those of *fact* are contingent and their opposite is possible. When a truth is necessary its reason can be found by analysis, resolving it into more simple ideas and truths until we reach those which are primitive.*

34. It is thus that mathematicians by analysis reduce speculative *theorems* and practical *canons* to *definitions*, *axioms* and *postulates*.

35. Finally there are simple ideas, definitions of which cannot be given; there are also axioms and postulates, in a word, *primary principles*, which cannot be proved and indeed need no proof, and these are *identical propositions*, the opposite of which contains an express contradiction.

36. But there must also be a *sufficient reason* for *contingent truths*, or those *of fact*,—that is, for the series of things diffused through the universe of created objects—where the resolution into particular reasons might run into a detail without limits, on account of the immense variety of objects and the division of bodies *ad infinitum*. There is an infinity of figures and of movements, present and past, which enter into the efficient cause of my present writing, and there is an infinity of trifling inclinations and dispositions, past and present, of my soul, which enter into the final cause.†

37. And as all this *detail* only involves other contingents, anterior or more detailed, each one of which needs a like analysis for its explanation, we make no advance, and the sufficient or final reason must be outside of the sequence or *series* of this detail of contingencies, however infinite it may be.

38. And thus it is that the final reason of things must be found in a necessary substance, in which the detail of changes exists only eminently, as in their source, and this it is which we call God.‡

39. Now this substance being the sufficient reason of all this detail, which also is linked together throughout, *there is but one God, and this God suffices.*

40. We may judge also that this supreme substance, which is unique, universal and necessary, having nothing outside of itself which is independent of it, and being the simple series of possible

* §§ 170, 174, 189, 280–282, 367, Abridgment, Objection 3.
† §§ 36, 37, 44, 45, 49, 52, 121, 122, 337, 340, 344. ‡ §7.

being, must be incapable of limitations and must contain as much of reality as is possible.

41. Whence it follows that God is absolutely perfect, *perfection* being only the magnitude of positive reality taken in its strictest meaning, setting aside the limits or bounds in that which is limited. And there where there are no limits, that is, in God, perfection is absolutely infinite.*

42. It follows also that creatures have their perfections from the influence of God, but that their imperfections arise from their own nature incapable of existing without limits. For it is by this that they are distinguished from God.†

43. It is also true that in God is the source not only of existences but also of essences, so far as they are real, or of that which is real in the possible. This is because the understanding of God is the region of eternal truths, or of the ideas on which they depend, and because, without him, there would be nothing real in the possibilities, and not only nothing existing but also nothing possible.‡

44. Nevertheless, if there is a reality in the essences or possibilities or in the eternal truths, this reality must be founded in something existing and actual; consequently in the existence of the necessary being in whom essence involves existence or with whom it is sufficient to be possible in order to be actual.‖

45. Hence God (or the necessary being) alone has this privilege that he must exist if it is possible. And since nothing can hinder the possibility of that which possesses no limitations, no negation, and, consequently, no contradiction, this alone is sufficient to establish the existence of God *à priori*. We have also proved it by the reality of the eternal truths. But we have just proved it also *à posteriori*, since contingent beings exist which can only have their final or sufficient reason in a necessary being who has the reason of his existence in himself.

46. But it must not be imagined, as is sometimes done, that the eternal truths, being dependent upon God, are arbitrary and depend upon his will, as Descartes seems to have conceived, and afterwards M. Poiret. This is true only of contingent truths, the principle of

* § 22; Preface, p. 27.

† §§ 20, 27-31, 153, 167, 377 seqq. [In the copy revised by Leibnitz the following is added: "This *original imperfection* of creatures is noticeable in the *natural inertia* of bodies. §§ 30, 380; Abridgment, Objection 5."]

‡ § 20.

‖ §§ 184, 189, 335.

which is *fitness* or the choice of the *best*, whereas necessary truths depend solely on his understanding and are its internal object.*

47. Thus God alone is the primitive unity or the original simple substance; of which all monads, created or derived, are the products, and are born, so to speak, from moment to moment by continual fulgurations of the Divinity, limited by the receptivity of the creature, to which limitation is essential.†

48. In God is *Power*, which is the source of all; then *Knowledge*, which contains the detail of ideas; and finally *Will*, which effects changes or products according to the principle of the best. It is this which corresponds to what in created monads forms the subject or basis, the perceptive and the appetitive faculty. But in God these attributes are absolutely infinite or perfect, and in the created monads or in the *entelechies* (or *perfectihabies*, as Harmolaus Barbarus translated the word), they are only imitations proportioned to their perfection.‡

49. The creature is said to *act* externally in so far as it is perfect, and to *suffer* from another in so far as it is imperfect. Thus *action* is attributed to the monad in so far as it has distinct perceptions, and *passion* in so far as it has confused perceptions.‖

50. And one creature is more perfect than another in that there is found in it that which serves to account *à priori* for what takes place in another, and it is in this way that it is said to act upon another.

51. But in simple substances the influence of one monad upon another is purely *ideal*, since it can take effect only through the introduction of God, inasmuch as in the ideas of God a monad may demand with reason that God in regulating the others from the commencement of things, have regard to it. For since a created monad can have no physical influence upon the interior of another, it is only in this way that one can be dependent upon another.¶

52. And hence it is that the actions and passions of creatures are mutual. For God, in comparing two simple substances, finds in each one reasons which compel him to adjust the other to it, and consequently that which in certain respects is active, is according to another point of view, passive; *active* in so far as that what is

* §§ 180, 184, 185, 335, 351, 380.
† §§ 382–391, 398, 395.
‡ §§ 7, 149, 150, 87.
‖ §§ 22, 66, 386.
¶ §§ 9, 54, 65, 66, 201; Abridgment, Objection 3.

known distinctly in it, serves to account for that which takes place in another; and *passive* in so far as the cause of what takes place in it, is found in that which is distinctly known in another.*

53. Now, as there is an infinity of possible universes in the idea of God, and as only one of them can exist, there must be a sufficient reason for the choice of God, which determines him for one rather than for another.†

54. And this reason can only be found in the *fitness*, in the degrees of perfection, which these worlds contain, each possible world having a right to claim existence according to the measure of perfection which it possesses.‡

55. And this is the cause of the existence of the Best, which wisdom makes known to God, which his goodness chooses and which his power produces.‖

56. Now this *connection*, or this adaptation of all created things to each and of each to all, brings it about that each simple substance has relations which express all the others, and that consequently it is a living, perpetual mirror of the universe.¶

57. And as the same city regarded from different sides appears entirely different and in *perspective* is as if multiplied, so also it happens that, because of the infinite multiplicity of simple substances, there are as it were so many different universes, which are nevertheless only the perspectives of a single one, from the different *points of view* of each monad.**

58. And this is the way to obtain as great a variety as possible, but with the greatest possible order; that is, it is the way to obtain as much perfection as possible.††

59. Thus this hypothesis (which I dare to assert is demonstrated) is the only one which brings into relief the grandeur of God. M. Bayle recognized this, when in his Dictionary (Art. *Rorarius*) he objected to it; where indeed he was tempted to believe that I accorded to God more than was possible. But he can state no reason why this universal harmony which brings it about that each

* § 66. † §§ 10, 44, 173, 196 seqq., 225, 414-416.

‡ §§ 74, 167, 350, 201, 130, 352, 345 seqq., 354. [In the first copy revised by Leibnitz the following is found added here: "Thus there is nothing absolutely arbitrary."]

‖ §§ 8, 78, 80, 119, 204, 206, 208; Abridgment, Objections 1 and 8.

¶ §§ 130, 360. ** § 147.

†† §§ 120, 124, 241 seqq., 214, 243, 275.

substance expresses exactly all others by the relations which it sustains to them, is impossible.

60. Besides, we can see in what I have just said *à priori* reasons why things could not be otherwise, because God, in regulating all, has regard to each part, and particularly to each monad, since, its nature being representative, nothing can limit it to representing only a part of things; although it may be true that this representation is but confused as regards the detail of the whole universe, and can be distinct only in the case of a small part of things, that is to say, in the case of those which are nearest or largest in relation to each of the monads—otherwise each monad would be a divinity. It is not in the object but only in the modification of the knowledge of the object, that monads are limited. They all tend confusedly toward the infinite, toward the whole, but they are limited, and distinguished by their degrees of distinct perceptions.

61. And in this respect compound substances symbolize with simple substances. For since the world is a *plenum*, making all matter connected, and since in a plenum every movement has some effect on distant bodies in proportion to their distance, so that each body is affected not only by those which touch it and feels in some way all that happens to them but also by their means is affected by those which touch the first with which it is in immediate contact, it follows that this communication extends to any distance whatever. Consequently, each body feels all that passes in the universe, so that he who sees all, could read in each that which passes everywhere else, and even that which has been or shall be, perceiving in the present that which is removed in time as well as in space; *σύμπνοια πάντα*, said Hippocrates. But a soul can read in itself only that which is distinctly represented in it. It cannot develop its laws all at once, for they reach into the infinite.

62. Thus, although each created monad represents the entire universe, it represents most distinctly the body which is particularly appropriated to it and of which it forms the entelechy; and as this body represents the whole universe by the connection of all matter in a plenum, the soul also represents the whole universe by representing that body which especially belongs to it.*

63. The body belonging to a monad, which is its entelechy or soul, constitutes, with the entelechy, what may be called a *living*

* § 400.

being, and with the soul, what may be called an *animal*. Now this body of a living being or of an animal is always organic, for since every monad is in its way a mirror of the universe, and since the universe is arranged in perfect order, there must also be order in the representative, that is, in the perceptions of the soul, and hence in the body, according to which the universe is represented in it.*

64. Thus each organic body of a living being is a kind of divine machine or natural automaton, which infinitely surpasses all artificial automata, because a machine which is made by man's art is not a machine in each one of its parts; for example, the tooth of a brass wheel has parts or fragments which to us are no longer artificial and have nothing in themselves to show the use to which the wheel was destined in the machine. But nature's machines, that is, living bodies, are machines even in their smallest parts *ad infinitum*. Herein lies the difference between nature and art, that is, between the divine art and ours.

65. And the author of nature has been able to contrive these divine and infinitely marvellous works of art, because each portion of matter is not only divisible *ad infinitum*, as the ancients perceived, but also each part is actually endlessly subdivided into parts of which each has its own motion: otherwise it would be impossible for each portion of matter to express the universe.†

66. Hence we see that there is a world of creatures, of living beings, of animals, of entelechies, of souls, in the smallest particle of matter.

67. Each portion of matter may be conceived of as a garden full of plants, and as a pond full of fishes. But each branch of the plant, each member of the animal, each drop of its humors is also such a garden or such a pond.

68. And although the earth or air embraced between the plants of the garden, or the water between the fish of the pond, is neither plant nor fish, they yet contain more of them, but for the most part so tiny as to be to us imperceptible.

69. Therefore there is nothing uncultivated, nothing sterile, nothing dead in the universe, no chaos, no confusion except in appearance. Just as a pond would appear from a distance in which we might see the confused movement and swarming, so to speak, of the fishes in the pond, without perceiving the fish themselves.‡

*§ 403. † Prelim., § 70; Theod., § 195. ‡ Preface, pp. 40, 41.

70. We see thus that each living body has a ruling entelechy which is the soul in the animal, but the members of this living body are full of other living beings—plants, animals—each of which has also its entelechy or governing soul.

71. But it must not be imagined, as has been done by some people who have misunderstood my thought, that each soul has a mass or portion of matter appropriated to it or united to it forever, and that hence it possesses other inferior living beings destined to its service forever. For all bodies are, like rivers, in a perpetual flux, and parts are entering into them and departing from them continually.

72. Thus the soul changes its body only gradually and by degrees, so that it is never deprived of all its organs at once. There is often a metamorphosis in animals, but never metempsychosis nor transmigration of souls. There are also no entirely *separate* souls, nor *genii* without bodies. God alone is wholly without body.*

73. For which reason also, it happens that there is, strictly speaking, neither complete generation nor entire death, where the soul is separated from the body. What we call generation is development or increase, as also what we call *death* is envelopment and diminution.

74. Philosophers have been greatly puzzled over the origin of forms, entelechies, or souls; but to-day, when we know by exact investigations of plants, insects and animals, that organic bodies in nature are never produced from chaos or from putrefaction, but always from seeds, in which there was undoubtedly some *pre-formation*, it has been thought that not only the organic body was already there before conception, but also a soul in this body, and, in a word, the animal itself; and that by means of conception this animal has merely been disposed to a greater transformation, in order to become an animal of another kind. Something similar is seen outside of generation, as when worms become flies, and caterpillars, butterflies.†

75. The *animals*, some of which are raised by conception to the grade of larger animals, may be called *spermatics;* but those among them, which remain in their class, that is, the most part, are

* Théod., § 90, 124.

† §§ 86, 89, 90, 187, 188, 403, 397; Preface, p. 40, seq.

born, multiply, and are destroyed like the larger animals, and there is only a small number of chosen ones, which pass to a larger theatre.

76. But this were only half the truth; I have therefore thought that if the animal never has a natural beginning, it cannot end naturally; and that not only will there be no generation, but also no utter destruction or death strictly speaking. And these reasonings, made *à posteriori* and drawn from experience, harmonize perfectly with principles deduced *à priori*, as above.*

77. Thus it may be said that not only the soul (mirror of an indestructible universe) is indestructible, but also the animal itself, although its machine often perishes in part and takes on or puts off organic spoils.

78. These principles have given me the means of explaining naturally the union or rather the conformity of the soul and the organic body. The soul follows its own peculiar laws and the body also follows its own laws, and they meet by virtue of the *pre-established harmony* between all substances, since they are all representations of one and the same universe.†

79. Souls act according to the laws of final causes, by appetitions, ends and means. Bodies act in accordance with the laws of efficient causes or of motion. And the two realms, that of efficient causes and that of final causes, are in harmony with each other.

80. Descartes recognized that souls cannot give any force to bodies, because there is always the same quantity of force in matter; nevertheless he believed that the soul could change the direction of bodies. But it was because, in his day, the law of nature which enforces the conservation of the total direction in matter, was not known. If he had known this, he would have lighted upon my system of the pre-established harmony.‡

81. By this system it comes about that bodies act as if (what is impossible) there were no souls, and that souls act as if there were no bodies, and that both act as if each influenced the other.

82. As to spirits or rational souls, although I find that the same thing which I have stated—namely, that animals and souls begin only with the world and end only with the world—holds good at bottom with regard to all animals and living things, yet there is this

* § 90. † Preface, p. 36; Théod., §§ 340, 352, 353, 358.
‡ Pref., p. 44; Théod., §§ 22, 59, 60, 61, 63, 66, 345, 346 seqq., 354, 355.

peculiarity in rational animals, that their spermatic animalcules, as such, have only ordinary or sensitive souls, but as soon as those which are, so to speak, elected, attain by actual conception to human nature, their sensitive souls are elevated to the rank of reason and to the prerogative of spirits.*

83. Among other differences which exist between ordinary souls and spirits, a part of which I have already mentioned, there is furthermore, this, that souls in general are the living mirrors or images of the universe of creatures, but spirits are in addition images of the Divinity itself, or of the author of nature, able to know the system of the universe and to imitate something of it by architectonic samplings, since every spirit is as a little divinity in its own department.†

84. Hence it comes about that spirits are capable of entering into a sort of society with God, and that he is, in relation to them, not only what an inventor is to his machines (as God is in relation to the other creatures), but also what a prince is to his subjects and even a father to his children.

85. Whence it is easy to conclude that the assembly of all spirits must compose the City of God, that is, the most perfect state which is possible, under the most perfect of monarchs.‡

86. This City of God, this truly universal monarchy, is a moral world within the natural world, and the highest and most divine of the works of God; it is in this that the glory of God truly consists, for he would have none if his greatness and goodness were not known and admired by spirits. It is, too, only in relation to the divine city that he possesses, properly, goodness; while his wisdom, and power are everywhere manifest.

87. As we have above established perfect harmony between two natural kingdoms, the one of efficient, the other of final causes, we should also notice here another harmony between the physical kingdom of nature and the moral kingdom of grace; that is, between God considered as the architect of the mechanism of the universe, and God, considered as monarch of the divine city of spirits.‖

88. This harmony makes all things progress toward grace by natural methods. This globe, for example, must be destroyed and repaired by natural means, at such times as the government of

* §§ 91, 397. † § 147. ‡ § 146; Abridgment, Objection 2.
‖ §§ 62, 72, 118, 248, 112, 130, 247.

spirits may demand it, for the punishment of some and the reward of others.*

89. It may be said, farther, that God as architect satisfies in every respect God as legislator, and that therefore sins, by the decree of nature and by virtue even of the mechanical structure of things, must carry their punishment with them; and that in the same way, good actions will obtain their rewards by mechanical ways through their relation to bodies, although this may not and ought not always happen immediately.

90. Finally, under this perfect government, there will be no good action without reward, no bad action without punishment, and everything must result for the well-being of the good, that is, of those who are not discontented in this great State, who, after having done their duty, trust in providence, and who love and imitate as they ought the author of all good, pleasing themselves with the contemplation of his perfections,—according to the nature of truly *pure love*, which takes pleasure in the happiness of the loved one. This is what causes wise and virtuous persons to work at all which seems conformable to the divine will, presumptive or antecedent, and yet to content themselves with that which God in reality sends by his secret, consequent and decisive will, recognizing that if we could sufficiently comprehend the order of the universe we would find that it surpassed all the wishes of the wisest, and that it is impossible to render it better that it is, not only for all in general, but also for ourselves in particular, if we are attached, as we should be, to the author of all, not only as the architect and efficient cause of our being, but also as our master and final cause, who ought to be the sole aim of our volition, and who can alone secure our happiness.†

* §§ 18 seqq., 110, 244, 245, 340.

† §§ 134 fin., 278; Preface, pp. 27, 28.

XXXIV.

On the Doctrine of Malebranche. A Letter to M. Remond de Montmort, containing Remarks on the Book of Father Tertre against Father Malebranche. 1715.

[From the French.]

Sir, I have just received your package, and I thank you for the interesting articles which you have sent me. I say nothing on the continuation of Homer; but as, after the sacred books, he is the most ancient of all the authors whose works remain to us, I wish that some one would undertake to clear up the historical and geographical difficulties which remote antiquity has produced in these works, and principally in the Odyssey, relating to ancient geography; for, however fabulous the travels of Ulysses may be, it is nevertheless certain that Homer carried him into countries then spoken of but which it is difficult now to recognize.

I pass to the philosophical articles which relate to the Reverend Father Malebranche (whose loss I greatly regret), and which tend to elucidate the natural theology of the Chinese. The *Refutation* of the system of this Father, divided into three small volumes, is without doubt from a man of ability, for it is clear and ingenious. I even approve of a part of it, but part of it is too extreme. Too much divergence is here shown from the views of Descartes and of Father Malebranche, even when they receive a good meaning. It should be time to give up these enmities, which the Cartesians have perhaps drawn upon themselves by showing too much contempt for the ancients and for the schoolmen, in whom there is nevertheless solidity meriting our attention. Thus justice ought to be shown on the one side and on the other, and we are to profit by the discoveries of both, as it is right to reject that which each advances without foundation.

1. It is right to refute the Cartesians when they say that the soul is nothing but thought; as also when they say that matter is nothing but extension. For the soul is a subject or *concretum* which thinks, and matter is an extended subject or subject endowed with extension. This is why I hold that space must not be con-

founded with matter, although I agree that naturally there is no void space; the scholastics are right in distinguishing the *concretes* and the *abstracts*, when it is a matter of exactness.

2. I concede to the Cartesians that the soul actually always thinks, but I do not grant that it is conscious of all these thoughts. For our great perceptions and our great appetites of which we are conscious, are composed of innumerable little perceptions and little inclinations of which we cannot be conscious. And it is in the insensible perceptions that the reason is found of what passes in us; as the reason of what takes place in sensible bodies consists in insensible movements.

3. There is good reason also for refuting Reverend Father Malebranche especially when he maintains that the soul is purely passive. I think I have demonstrated that every substance is active, and especially the soul. This is also the idea which the ancients and the moderns have had of it; and the *entelechy* of Aristotle, which has made so much noise, is nothing else but force or activity; that is, a state from which action naturally flows if nothing hinders it. But *matter*, *primary* and pure, taken without the souls or lives which are united to it, is purely passive; properly speaking also it is not a substance, but something incomplete. And *secondary matter*, as for example, body, is not a substance, but for another reason; which is, that it is a collection of several substances, like a pond full of fish, or a flock of sheep; and consequently it is what is called *unum per accidens*, in a word, a phenomenon. A true substance, such as an animal, is composed of an immaterial soul, and an organized body; and it is the compound of these two which is called *unum per se*.

4. As to the *efficiency of second causes*, it is again right to maintain it against the opinion of this Father. I have demonstrated that each simple substance, or monad (such as souls), follows its own laws in producing its actions, without being capable of being troubled therein by the influence of another created simple substance; and that thus bodies do not change the ethico-logical laws of souls, any more than souls change the physico-mechanical laws of bodies. This is why second causes really act, but without any influence of one created simple substance upon another; and souls harmonize with bodies and among themselves, in virtue of the preëstablished harmony, and not at all by a mutual physical influ-

ence; except in the case of the metaphysical union of the soul and its body which makes them compose *unum per se*, an animal, a living being. It has been right, therefore, to refute the opinion of those who deny the action of second causes; but it must be done without renewing false influences, such as the *species* of the school.

5. Father Malebranche made use of this argument: That extension not being a mode of being of matter, must be its substance. The author of the *Refutation* (Vol. I, p. 91), distinguishes between the positive modes of being; and he claims that extension is one of the modes of being of the second sort, which he thinks can be conceived by themselves. But these are not positive modes of being; they all consist in the variety of limitations, and all cannot be conceived save by the being of which they are the modes and ways. And as to extension it may be said that it is not a mode of being of matter, and nevertheless is not a substance either. What is it, then? you will ask, sir. I reply that it is an attribute of substances, and there is a clear difference between attributes and modes of being.

6. It appears to me, also, that the author of the *Refutation* does not well combat the opinion of the Cartesians on the infinite, which they with reason consider as prior to the finite, and of which the finite is but a limitation. He says (p. 303 of Vol. I), that if the mind had a clear and direct view of the infinite, Father Malebranche would not have had need of so much reasoning to make us think of it. But by the same argument he would reject the very simple and very natural knowledge we have of the Divinity. These kinds of objections amount to nothing, for there is need of labor and application in order to give to men the attention necessary for the simplest notions, and this end will only be reached by recalling them from their dissipation to themselves. It is also for this reason that the theologians who have composed works on eternity, have much need of discourse, of comparisons and of examples to make it well understood; although there is nothing more simple than the notion of eternity. But it is because, in such matters, all depends on attention. The author adds (Vol. I, p. 307), that in the pretended knowledge of the infinite, the mind sees merely that lengths may be put end to end and repeated as many times as is wished. Very good; but this author should consider that to know that this repetition can always be made, is already to know the infinite.

7. The same author examines in his second volume the natural theology of Father Malebranche; but his performance appears to me overdone, although he declares that he merely presents the doubts of others. The Father saying that God is being in general, this is taken for a vague and notional being, as is the genus in logic; and little more is needed to accuse Malebranche of atheism. But I think that the Father understood not a vague and indeterminate being, but absolute being, which differs from particular limited beings as absolute and boundless space differs from a circle or square.

8. There is more likelihood of combating the opinion of Malebranche on ideas. For there is no necessity (seemingly) for taking them for something external to us. It is sufficient to regard ideas as notions, that is to say, as modifications of our soul. It is thus that the schoolmen, Descartes, and Arnauld, regard them. But as God is the source of possibilities and consequently of ideas, the Father may be excused and even praised for having changed the terms and given to ideas a more exalted signification, in distinguishing them from notions and in taking them for perfections in God which we participate in by our knowledge. This mystical language of the Father was not then necessary; but I find it useful, for it better brings before the mind our dependence on God. It even seems that Plato, speaking of ideas, and St. Augustine, speaking of truth, had kindred thoughts, which I find very remarkable; and this is the part of Malebranche's system which I should like to have retained, with the phrases and formulas which depend on it, as I am very glad that the most solid part of the theology of the mystics is preserved. And far from saying with the author of the *Refutation* (Vol. 2, p. 304), that the system of St. Augustine is *a little infected with the language and opinions of the Platonists;* I would say that it is thereby enriched and set in relief.

9. I say almost as much of the opinion of Father Malebranche when he affirms that *we see all things in God.* I say that it is an expression which may be excused and even praised, provided it be rightly taken; for it is easier to fall into mistake in this than in the preceding article on ideas. It is, therefore, well to observe that not only in Malebranche's system but also in mine, God alone is the immediate external object of souls, exercising upon them a real influence. And although the current school seems to admit other

influences, by means of certain species, which it believes that objects convey into the soul, it does not fail to recognize that all our perfections are a continual gift of God, and a limited participation in his infinite perfection. This suffices to show that what there is true and good in our knowledge is still an emanation from the light of God, and that it is in this sense that it may be said, that *we see all things in God.*

10. The third volume refutes the system of revealed theology of Father Malebranche, in reference especially to grace and predestination. But as I have not sufficiently studied the particular theological opinions of the author, and as I think I have sufficiently elucidated the matter in my essay *La Théodicée*, I excuse myself from entering upon it at present.

It would now remain to speak to you, sir, of the natural theology of the *Lettres Chinois*, according to what the Jesuit Father Longobardi and Father Antoine de St. Marie, of the Minorite order, report to us thereon in the treatises which you have sent me, in order to have my opinion of them; as well as of the mode which Reverend Father Malebranche has employed to give to a cultivated Chinaman some insight into our theology. But this requires a separate letter; this which I have just written being already sufficiently long. Referring for the rest to my preceding letter, I am zealously, sir, your very humble and very obedient servant,

LEIBNITZ.

Hanover, Nov. 4, 1715.

XXXV.

Letters to Sam. Clarke.

Mr. Leibnitz's First Paper: Being an Extract of a Letter written in November, 1715.

1. *Natural religion itself* seems to decay [*in England*] very much. Many will have human *souls* to be material: others make *God himself* a corporeal Being.

2. Mr. *Locke*, and his followers, are *uncertain* at least, whether the *soul* be not *material*, and naturally perishable.

3. Sir *Isaac Newton* says, that space is an *organ*, which God makes use of to perceive things by. But if God stands in need of any *organ* to perceive things by, it will follow, that they do not depend altogether upon him, nor were produced by him.

4. Sir *Isaac Newton*, and his followers, have also a very odd opinion concerning the work of God. According to their doctrine, God Almighty wants to *wind up* his watch from time to time: otherwise it would cease to move. He had not, it seems, sufficient foresight to make it a perpetual motion. Nay, the machine of God's making, is so imperfect, according to these gentlemen; that he is obliged to *clean* it now and then by an extraordinary concourse, and even to *mend* it, as a clockmaker mends his work; who must consequently be so much the more unskillful a workman, as he is oftener obliged to mend his work and to set it right. According to *my* opinion, the *same* force and vigor remains always in the world, and only passes from one part of matter to another, agreeably to the laws of nature, and the beautiful *pre-established* order. And I hold, that when God works miracles, he does not do it in order to supply the wants of nature, but those of *grace*. Whoever thinks otherwise, must needs have a very mean notion of the wisdom and power of God.

Mr. Leibnitz's Second Paper: Being an Answer to Dr. Clarke's First Reply.

1. It is rightly observed in the paper delivered to the *Princess of Wales*, which her *Royal Highness* has been pleased to communicate to me, that, next to corruption of manners, *the principles of the materialists* do very much contribute to keep up impiety. But I believe the author had no reason to add, that *the mathematical principles of philosophy are opposite to those of the materialists.* On the contrary, they are the same; only with this difference, that the *materialists*, in imitation of *Democritus*, *Epicurus*, and *Hobbes*, confine themselves altogether to *mathematical* principles, and admit only *bodies;* whereas the *Christian mathematicians* admit also immaterial substances. Wherefore, not *mathematical* principles (according to the usual sense of that word) but *metaphysical* principles ought to be opposed to those of the *materialists*. *Pythagoras*, *Plato*, and *Aristotle* in some measure, had a knowledge of these principles; but I pretend to have established them demonstratively in my *Theodicæa*, though I have done it in a popular manner. The great foundation of *mathematics*, is *the principle of contradiction or identity*, that is, that a proposition cannot be *true and false* at the same time; and that therefore A is A, and cannot be *not* A. This single principle is sufficient to demonstrate every part of arithmetic and geometry, that is, all *mathematical* principles. But in order to proceed from *mathematics* to *natural philosophy*, another principle is requisite, as I have observed in my *Theodicæa:* I mean, *the principle of a sufficient reason*, *viz:* that nothing happens without a *reason* why it should be *so*, rather than *otherwise*. And therefore *Archimedes* being desirous to proceed from *mathematics* to *natural philosophy*, in his book *De Æquilibrio*, was obliged to make use of a particular case of the great principle of *a sufficient reason*. He takes it for granted, that if there be a *balance*, in which every thing is alike on both sides, and if equal weights are hung on the two ends of that balance, the whole will be at rest. 'Tis because no *reason* can be given, why one side should weigh down, rather than the other. Now, by that single principle, *viz:* that *there ought to be a sufficient reason why things should be so, and not otherwise*, one may demonstrate the being of a *God*, and all the other parts of *metaphysics* or *natural theology*; and even, in some measure, those principles of *natural philosophy*,

that are independent upon *mathematics*: I mean, the *dynamic* principles, or the *principles of force.*

2. The author proceeds and says, that according to the *mathematical principles*, that is, according to Sir *Isaac Newton's philosophy* (for *mathematical principles* determine nothing in the present case,) *matter is the most inconsiderable part of the universe.* The reason is, because he admits *empty space*, besides *matter;* and because, according to *his* notions, *matter* fills up only a very small part of *space.* But *Democritus* and *Epicurus* maintained the same thing: they differed from Sir *Isaac Newton*, only as to the *quantity* of matter; and perhaps they believed there was *more* matter in the world, than Sir *Isaac Newton* will allow: wherein I think their opinion ought to be preferred; for, the *more* matter there is, the *more* God has occasion to exercise his wisdom and power. Which is one reason, among others, why I maintain that there is *no vacuum* at all.

3. I find, in express words, in the *Appendix* to Sir *Isaac Newton's Optics*, that *space* is the *sensorium* of *God.* But the word *sensorium* hath always signified the *organ* of sensation. He, and his friends, may *now*, if they think fit, explain themselves quite otherwise: I shall not be against it.

4. The author supposes that the *presence* of the soul is sufficient to make it perceive what passes in the brain. But this is the very thing which Father *Malebranche*, and all the *Cartesians* deny; and they *rightly* deny it. More is requisite besides *bare presence*, to enable one thing to perceive what passes in another. Some communication, that may be explained; some sort of *influence*, is requisite for this purpose. *Space*, according to Sir *Isaac Newton*, is intimately present to the body contained in it, and commensurate with it. Does it follow from thence, that space *perceives* what passes in a body; and *remembers* it, when that body is gone away? Besides, the soul being *indivisible*, it's immediate *presence*, which may be imagined in the body, would only be in *one point.* How then could it perceive what happens *out of* that point? I pretend to be the first, who has shown *how* the soul perceives what passes in the body.

5. The reason why God perceives every thing, is not his bare *presence*, but also his *operation.* 'Tis because he preserves things by an action, which *continually produces* whatever is good and

perfect in them. But the *soul* having no immediate *influence* over the *body*, nor the *body* over the *soul*, their mutual correspondence cannot be explained by their being *present* to each other.

6. The true and principal reason why we commend a machine, is rather grounded upon the *effects* of the machine, than upon its *cause*. We don't enquire so much about the *power* of the artist, as we do about his *skill* in his workmanship. And therefore the reason alleged by the author for extolling the machine of God's making, grounded upon his having *made it entirely*, without wanting any materials to make it of; that reason, I say, is not sufficient. 'Tis a mere shift the author has been forced to have recourse to: and the reason why God exceeds any other artist, is *not only* because he makes the *whole*, whereas all other artists must have matter to work upon. This excellency in God, would be *only* on the account of *power*. But God's excellency arises also from *another* cause, *viz*: *wisdom*, whereby his machine *lasts longer*, and moves *more regularly*, than those of any other artist whatsoever. He who buys a watch, does not mind whether the *workman* made every part of it *himself*, or whether he got the several parts made by *others*, and did only put them together; provided the watch goes right. And if the workman had received from God even the gift of *creating* the matter of the wheels; yet the buyer of the watch would not be satisfied, unless the workman had also received the gift of *putting them well together*. In like manner, he who will be pleased with *God's* workmanship, cannot be so, without some *other* reason than that which the author has here alleged.

7. Thus the *skill* of *God* must not be inferior to that of a workman; nay, it must go infinitely beyond it. The bare *production* of every thing, would indeed show the *power* of God; but it would not sufficiently show his *wisdom*. They who maintain the contrary, will fall exactly into the error of the *materialists*, and of *Spinoza*, from whom they profess to differ. They would, in such case, acknowledge *power*, but not sufficient wisdom, in the principle or cause of all things.

8. I do not say, the material world is a machine, or watch, that goes *without* God's *interposition*; and I have sufficiently insisted, that the creation wants to be continually influenced by its *Creator*. But I maintain it to be a watch, that goes *without* wanting to be *mended* by him: otherwise we must say, that God *bethinks himself*

again. No; God has *foreseen* everything; he has provided a remedy for everything *before-hand;* there is in his works a harmony, a beauty, already *pre-established.*

9. This opinion does not exclude God's *Providence*, or his *government* of the world: on the contrary, it makes it *perfect.* A true *Providence* of God, requires a perfect *foresight.* But then it requires moreover, not only that he should have *foreseen* everything; but also that he should have *provided* for everything *beforehand*, with proper remedies: otherwise, he must want either *wisdom* to *foresee* things, or *power* to *provide* against them. He will be like the God of the *Socinians*, who *lives only from day to day*, as Mr. *Jurieu* says. Indeed God, according to the *Socinians*, does not so much as *foresee* inconveniences; whereas, the gentlemen I am arguing with, who put him upon *mending* his work, say only, that he *does not provide against* them. But this seems to me to be still a very great *imperfection.* According to this doctrine, God must want either *power*, or *good will.*

10. I don't think I can be rightly blamed, for saying that God is *intelligentia supramundana.* Will they say, that he is *intelligentia mundana;* that is, the *soul of the world?* I hope not. However, they will do well to take care not to fall into that notion unawares.

11. The comparison of a king, under whose reign everything should go on without his interposition, is by no means to the present purpose; since God preserves everything continually, and nothing can subsist without him. His kingdom therefore is not a *nominal* one. 'Tis just as if one should say, that a king, who should originally have taken care to have his subjects so well educated, and should, by his care in providing for their subsistence, preserve them so well in their fitness for their several stations, and in their good affection towards him, as that he should have no occasion ever to be amending anything amongst them; would be only a *nominal* king.

12. To conclude. If God is obliged to mend the course of nature from time to time, it must be done either *supernaturally* or *naturally.* If it be done *supernaturally*, we must have recourse to *miracles*, in order to explain natural things: which is reducing an hypothesis *ad absurdum:* for, everything may easily be accounted for by *miracles.* But if it be done *naturally*, then God

will not be *intelligentia supramundana*: he will be comprehended under the nature of things; that is, he will be *the soul of the world.*

MR. LEIBNITZ'S THIRD PAPER: Being an Answer to Dr. Clarke's Second Reply.

1. According to the usual way of speaking, *mathematical* principles concern only *mere mathematics*, viz: numbers, figures, arithmetic, geometry. But *metaphysical* principles concern *more general notions*, such as are cause and effect.

2. The author grants me this important *principle;* that *nothing happens without a sufficient reason, why it should be so, rather than otherwise.* But he grants it only in *words*, and *in reality* denies it. Which shows that he does not fully perceive the strength of it. And therefore he makes use of an influence, which exactly falls in with one of my demonstrations against *real absolute space*, which is an *idol* of some modern *Englishmen.* I call it an *idol*, not in a theological sense, but in a philosophical one; as Chancellor *Bacon* says, that there are *idola tribûs, idola specûs.*

3. These gentlemen maintain therefore, that *space* is a *real absolute being.* But this involves them in great difficulties; for such a *being* must needs be *eternal* and *infinite.* Hence some have believed it to be *God himself*, or, one of his attributes, his *immensity.* But since space consists of *parts*, it is not a thing which can belong to God.

4. As for my own opinion, I have said more than once, that I hold *space* to be something *merely relative*, as *time* is; that I hold it to be an *order of coexistences*, as *time* is an *order of successions.* For *space* denotes, in terms of possibility, *an order* of things which exist at the same time, considered as existing *together;* without inquiring into their particular manner of existing. And when many things are seen *together*, one perceives *that order of things among themselves.*

5. I have many demonstrations, to confute the fancy of those who take *space* to be a *substance*, or at least an absolute *being.* But I shall only use, at the present, one demonstration, which the author here gives me occasion to insist upon. I say then, that if *space* was an absolute *being*, there would something happen, for which it would be impossible there should be a *sufficient reason.*

Which is against my Axiom. And I prove it thus. *Space* is something absolutely *uniform;* and, without the things placed in it, *one point* of space does not absolutely differ in any respect whatsoever from *another point* of space. Now from hence it follows, (supposing space to be something in itself, besides the *order of bodies among themselves,*) that 'tis impossible there should be a *reason*, why God, preserving the same situations of bodies among themselves, should have placed them in space after *one certain particular manner*, and not *otherwise;* why everything was not placed the *quite contrary way*, for instance, by changing *east* into *west*. But if space is nothing else, but that *order* or *relation:* and is nothing at all without bodies, but the possibility of placing them; then those two states, the *one* such as it now is, the *other* supposed to be the quite contrary way, would not at all differ from one another. *Their difference* therefore is only to be found in our *chimerical* supposition of the *reality* of space in itself. But in truth the *one* would exactly be the same thing as the *other*, they being absolutely *indiscernible;* and consequently there is no room to enquire after a reason of the preference of the one to the other.

6. The case is the same with respect to *time*. Supposing any one should ask, why God did not create everything *a year sooner;* and the same person should infer from thence, that God has done something, concerning which 'tis *not possible* there should be a *reason*, why he did it *so*, and not *otherwise:* the answer is, that his inference would be right, if *time* was any thing distinct from things existing in time. For it would be *impossible* there should be any *reason*, why things should be applied to such *particular instants*, rather than to *others*, their succession continuing the same. But then the same argument proves, that *instants*, considered without the things, are *nothing at all;* and that they consist only in the successive *order* of things: which order remaining the same, *one* of the two states, *viz.* that of a supposed anticipation, would not at all differ, nor could be discerned from, the *other* which now is.

7. It appears from what I have said, that my axiom has not been well understood; and that the author denies it, tho' he seems to grant it. *'Tis true*, says he, *that there is nothing without a sufficient reason why it is, and why it is thus, rather than otherwise:* but he adds, that *this sufficient reason*, is often *the simple or mere will of God:* as, when it is asked why matter was not placed *other-*

wise in space; the same situations of bodies among themselves being preserved. But this is plainly maintaining, that God *wills* something, without any *sufficient reason* for his will: against the axiom, or the general rule of whatever happens. This is falling back into the *loose indifference*, which I have confuted at large, and showed to be absolutely *chimerical* even in creatures, and contrary to the wisdom of God, as if he could operate without acting by reason.

8. The author objects against me, that if we don't admit this *simple and mere will*, we take away from God the power of *choosing*, and bring in a fatality. But the quite contrary is true. I maintain that God has the power of choosing, since I ground that power upon the *reason of a choice* agreeable to his wisdom. And 'tis not *this fatality*, (which is only the wisest order of Providence) but a *blind fatality* or *necessity*, void of all wisdom and choice, which we ought to avoid.

9. I had observed, that by lessening the *quantity of matter*, the quantity of objects, upon which God may exercise his goodness, will be lessen'd. The author answers, that instead of *matter*, there are other things in the void space, on which God may exercise his goodness. Be it so: tho' I don't grant it; for I hold that every created substance is attended with matter. However, let it be so: I answer, that *more matter* was consistent with those same things; and consequently the said objects will be still lessened. The instance of a greater number of *men*, or *animals*, is not to the purpose; for they would *fill up* place, in exclusion of other things.

10. It will be difficult to make me believe, that *sensorium* does not, in its *usual* meaning, signify an *organ* of sensation. See the words of *Rudolphus Goclenius*, in his *Dictionarium Philosophicum; v.* sensiterium. *Barbarum Scholasticorum*, says he, *qui interdum sunt Simiæ Græcorum. Hi dicunt* Αἰσθητήριον. *Ex quo illi fecerunt* sensiterium *pro* sensorio, *id est, organo sensationis.*

11. The *mere presence* of a substance, even an animated one, is not sufficient for perception. A blind man, and even a man whose thoughts are wandering, does not *see*. The author must explain, how the soul perceives what is *without* itself.

12. God is not present to things by *situation*, but by *essence:* his presence is manifested by his immediate *operation*. The presence of the *soul* is quite of another nature. To say that it is diffused all over the body, is to make it extended and divisible. To

say it is, the whole of it, in every part of the body, is to make it divided from itself. To fix it to a *point*, to diffuse it all over *many points*, are only abusive expressions, *idola tribûs*.

13. If *active force* should *diminish* in the universe, by the natural laws which God has established; so that there should be need for him to give a *new impression* in order to restore that force, like an artist's mending the imperfections of his machine; the disorder would not only be with respect to *us*, but also with respect to *God himself*. He *might have* prevented it, and taken better measures to avoid such an inconvenience: and therefore, indeed, he has *actually* done it.

14. When I said that God has provided remedies beforehand against such disorders, I did not say that God suffers disorders to happen, and then finds remedies for them; but that he has found a way beforehand to prevent any disorders happening.

15. The author strives in vain to criticize my expression, that God is *intelligentia supramundana*. To say that God is above the world, is not denying that he is in the world.

16. I never gave any occasion to doubt, but that God's conservation is an actual preservation and continuation of the beings, powers, orders, dispositions, and motions of all things: and I think I have perhaps explained it better than many others. But, says the author, *this is all that I contended for*. To this I answer; *your humble servant for that, sir*. Our dispute consists in many other things. The question is, whether God does not act in the most *regular* and most *perfect* manner? whether his machine is liable to *disorder*, which he is obliged to mend by extraordinary means? whether the will of God can act *without reason?* whether space is an *absolute being?* also concerning the nature of *miracles;* and many such things, which make a wide difference between us.

17. *Divines* will not grant the author's position against me, viz. that there is no difference, with respect to *God*, between *natural* and *supernatural:* and it will be still less approved by most *philosophers*. There is a vast difference between these two things; but it plainly appears, it has not been duly consider'd. That which is *supernatural* exceeds *all the powers of creatures*. I shall give an instance, which I have often made use of with good success. If God would cause a body to move free in the *æther* round about a certain fixed center, without any other creature acting upon it: I

say, it could not be done without a *miracle;* since it cannot be explained by the nature of bodies. For, a free body does naturally recede from a curve in the tangent. And therefore I maintain, that the *attraction* of bodies, properly so called, is a *miraculous* thing, since it cannot be explained by the nature of bodies.

Mr. Leibnitz's Fourth Paper; Being an Answer to Dr. Clarke's Third Reply.

1. In things *absolutely indifferent*, there is no [foundation for] choice; and consequently no election, nor will; since choice must be founded on some *reason*, or principle.

2. *A mere will* without any motive, is a fiction, not only contrary to God's perfection, but also chimerical and contradictory; inconsistent with the definition of the *will*, and sufficiently confuted in my *Theodicæa.*

3. 'Tis a thing *indifferent*, to place three bodies, equal and perfectly alike, in any order whatsoever; and consequently they will *never be placed in any order*, by him who does nothing without wisdom. But then, he being the author of things, no such things will be *produced by him* at all; and consequently there *are no such things* in nature.

4. There is no such thing as two individuals *indiscernible* from each other. An ingenious gentleman of my acquaintance, discoursing with me, in the presence of her *Electoral Highness the Princess* Sophia, in the garden of *Herrenhausen*, thought he could find two leaves perfectly alike. The princess defied him to do it, and he ran all over the garden a long time to look for some; but it was to no purpose. Two drops of water, or milk, viewed with a microscope, will appear distinguishable from each other. This is an argument against *atoms;* which are confuted, as well as a *vacuum*, by the principles of true metaphysics.

5. Those great principles of a *sufficient reason*, and of the *identity of indiscernibles*, change the state of metaphysics. That science becomes real and demonstrative by means of these principles; whereas before, it did generally consist in empty words.

6. To suppose *two* things *indiscernible*, is to suppose the *same thing* under *two names.* And therefore to suppose that the universe could have had at first *another* position of *time* and *place*,

than that which it actually had; and yet that all the parts of the universe should have had the same situation among themselves, as that which they actually had; such a supposition, I say, is an *impossible* fiction.

7. The same reason, which shows that *extramundane* space is *imaginary*, proves that *all empty space* is an *imaginary* thing; for they differ only as greater and less.

8. If *space* is a *property* or attribute, it must be the property of some *substance*. But *what substance* will that *bounded* empty space be an affection or property of, which the persons I am arguing with, suppose to be between two bodies?

9. If *infinite space* is *immensity*, *finite space* will be the opposite to immensity, that is, 'twill be *mensurability*, or *limited extension*. Now extension must be the affection of some thing extended. But if that space be empty, it will be an attribute *without a subject*, an extension without any thing extended. Wherefore by making space a *property*, the author falls in with my opinion, which makes it an order of things, and not any thing absolute.

10. If space is an absolute *reality;* far from being a *property* or an accident opposed to substance, it will have a *greater reality* than *substances* themselves. God cannot destroy it, nor even change it in any respect. It will be not only immense in the whole, but also *immutable* and *eternal* in every part. There will be an infinite number of eternal things *besides God.*

11. To say that *infinite space* has no *parts*, is to say that it does not consist of *finite* spaces; and that infinite space might subsist, though all finite space should be reduced to nothing. It would be, as if one should say, in the *Cartesian* supposition of a material extended unlimited world, that such a world might subsist, though all the bodies of which it consists, should be reduced to nothing.

12. The author ascribes *parts* to space, *p. 19 of the 3d edition* of his *Defense of the Argument against Mr. Dodwell;* and makes them *inseparable* one from another. But, *p. 30 of his Second Defense*, he says they are *parts improperly so-called:* which may be understood in a good sense.

13. To say that God can cause the whole universe to *move forward* in a right line, or in any other line, without making otherwise any alteration in it, is another *chimerical* supposition. For, *two states indiscernible* from each other, are the *same* state; and

consequently, 'tis a change without any change. Besides, there is neither *rhyme* nor *reason* in it. But God does nothing without *reason;* and 'tis *impossible* there should be any here. Besides, it would be *agendo nihil agere*, as I have just now said, because of the indiscernibility.

14. These are *idola tribûs*, mere chimeras, and superficial imaginations. All this is only grounded upon the supposition, that imaginary space is real.

15. It is a like fiction, (that is) an *impossible* one, to suppose that God might have created the world some millions of years sooner. They who run into such kind of fictions, can give no answer to one that should argue for the *eternity* of the world. For since God does nothing without reason, and no reason can be given why he did not create the world sooner; it will follow, either that he has created nothing at all, or that he created the world before any assignable time, that is, that the world is *eternal.* But when once it has been shown, that the beginning, *whenever* it was, is always the *same thing;* the question, why it was not otherwise ordered, becomes needless and insignificant.

16. If *space* and *time* were anything absolute, that is, if they were anything else, besides certain *orders* of things; then indeed my assertion would be a *contradiction.* But since it is not so, the hypothesis [*that space and time are anything absolute*] is contradictory, that is, 'tis an *impossible* fiction.

17. And the case is the same as in *geometry;* where by the very supposition that a figure *is* greater than it really is, we sometimes prove that it *is not* greater. This indeed is a *contradiction;* but it lies in the hypothesis, which appears to be false for that very reason.

18. Space being *uniform*, there can be neither any *external* nor *internal* reason, by which to distinguish its parts, and to make any choice among them. For, any *external* reason to discern between them, can only be grounded upon some *internal* one. Otherwise we should discern what is indiscernible, or choose without discerning. A will without reason, would be the *chance* of the *Epicureans.* A God, who should act by such a will, would be a God only in name. The cause of these errors proceeds from want of care to avoid what derogates from the divine perfections.

19. When *two* things which cannot both be together, are *equally good;* and neither in themselves, nor by their combination with other things, has the one any advantage over the other; God will produce *neither of them.*

20. God is never determined by *external* things, but always by what is *in himself;* that is, by his knowledge of things, before any thing exists *without* himself.

21. There is no *possible* reason, that *can limit* the quantity of matter; and therefore such limitation can have no place.

22. And supposing an arbitrary limitation of the quantity of matter, something might always be added to it without derogating from the perfection of those things which do already exist; and consequently something must always be added, in order to act according to the principle of the perfection of the divine operations.

23. And therefore it cannot be said, that the present quantity of matter is the fittest for the present constitution of things. And supposing it were, it would follow that this present constitution of things would not be the fittest absolutely, if it hinders God from using more matter. It were therefore better to choose another constitution of things, capable of something more.

24. I should be glad to see a passage of any philosopher, who takes *sensorium* in any other sense than *Goclenius* does.

25. If *Scapula* says that *sensorium* is the *place* in which the understanding resides, he means by it the *organ* of internal sensation. And therefore he does not differ from *Goclenius.*

26. *Sensorium* has always signified the *organ* of sensation. The *glandula pinealis* would be, according to *Cartesius*, the *sensorium*, in the above-mentioned sense of *Scapula.*

27. There is hardly any expression less proper upon this subject, than that which makes God to have a sensorium. It seems to make God the *soul of the world.* And it will be a hard matter to put a justifiable sense upon this word, according to the use Sir *Isaac Newton* makes of it.

28. Though the question be about the sense put upon that word by Sir *Isaac Newton*, and not by *Goclenius;* yet I am not to blame for quoting the philosophical dictionary of that author, because the design of dictionaries is to show the use of words.

29. God perceives things in himself. Space is the place of *things*, and not the place of God's *ideas:* unless we look upon space as something that makes an union between God and things, in imitation of the imagined union between the soul and the body; which would still make God the *soul of the world.*

30. And indeed the author is much in the wrong, when he compares *God's* knowledge and operation, with the knowledge and operation of *souls.* The *soul* knows things, because God has put into it a *principle representative* of *things without.* But *God* knows things, because he *produces* them continually.

31. The soul does not *act* upon things, according to my opinion, any otherwise than because the body adapts itself to the desires of the soul, by virtue of the *harmony*, which God has *pre-established* between them.

32. But they who fancy that the soul can give a *new force* to the body; and that God does the same in the world, in order to mend the imperfections of his machine; make God too much like the soul, by ascribing too much to the soul, and too little to God.

33. For, none but God can give a *new force* to nature; and *he* does it only *supernaturally.* If there was need for him to do it in the *natural* course of things; he would have made a very imperfect work. At that rate, *he* would be with respect to the *world*, what the *soul*, in the vulgar notion, is with respect to the body.

34. Those who undertake to defend the vulgar opinion concerning the soul's *influence* over the body, by instancing in God's operating on things external; make God still too much like a soul of the world. To which I add, that the author's affecting to find fault with the words, *intelligentia supramundana*, seems also to incline that way.

35. The images, with which the soul is immediately affected, are within itself; but they correspond to those of the body. The presence of the soul is imperfect, and can only be explained by that correspondence. But the presence of God is perfect, and manifested by his operation.

36. The author wrongly supposes against me, that the presence of the soul is connected with its *influence* over the body; for he knows, I reject that *influence.*

37. The soul's being *diffused through the brain*, is no less inexplicable, than its being diffused through the whole body. The difference is only in *more* and *less.*

38. They who fancy that *active force* lessens of itself in the world, do not well understand the principal laws of nature, and the beauty of the works of God.

39. How will they be able to prove, that this *defect* is a consequence of the dependence of things?

40. The imperfection of our machines, which is the reason why they want to be mended, proceeds from this very thing, that they do not sufficiently depend upon the workman. And therefore the dependence of nature upon God, far from being the cause of such an imperfection, is rather the reason why there is no such imperfection in nature, because it depends so much upon an artist, who is too perfect to make a work that wants to be mended. 'Tis true that every particular machine of nature, is, in some measure, liable to be disordered; but not the whole *universe*, which *cannot diminish in perfection.*

41. The author contends, that *space* does not depend upon the *situation* of *bodies.* I answer: 'Tis true, it does not depend upon *such* or *such* a situation of bodies; but it is *that order*, which renders bodies capable of being situated, and by which they have a situation among themselves when they *exist together;* as *time* is *that order*, with respect to their *successive* position. But if there were no creatures, space and time would be only in the ideas of God.

42. The author seems to acknowledge here, that his notion of a miracle is not the same with that which divines and philosophers *usually* have. It is therefore sufficient for my purpose, that my adversaries are obliged to have recourse to what is *commonly called* a miracle.

43. I am afraid the author, by altering the sense *commonly put* upon the word *miracle*, will fall into an inconvenient opinion. The nature of a miracle does not at all consist in *usefulness* or *unusefulness;* for then *monsters* would be *miracles.*

44. There are *miracles* of an *inferior* sort, which an *angel* can work. He can, for instance, make a man walk upon the water without sinking. But there are miracles, which none but God can work; they exceeding all natural powers. Of which kind, are *creating* and *annihilating.*

45. 'Tis also a supernatural thing, that bodies should *attract* one another at a distance, without any intermediate means; and that a

body should move around, without receding in the tangent, though nothing hinder it from so receding. For these effects cannot be explained by the nature of things.

46. Why should it be impossible to explain the motion of animals by *natural* forces? Though indeed, the *beginning* of animals is no less inexplicable by natural forces, than the beginning of the world.

P. S.—All those who maintain a *vacuum*, are more influenced by imagination than by reason. When I was a young man, *I* also gave in to the notion of a *vacuum* and *atoms;* but reason brought me into the right way. It was a pleasing imagination. Men carry their inquiries no farther than those two things: they (as it were) nail down their thoughts to them: they fancy, they have found out the first elements of things, a *non plus ultra.* We would have nature to go no farther; and to be finite, as our minds are: but this is being ignorant of the greatness and majesty of the author of things. The least corpuscle is actually subdivided *in infinitum*, and contains a world of other creatures, which would be wanting in the universe, if that corpuscle was an *atom*, that is, a body of one entire piece without subdivision. In like manner, to admit a *vacuum* in nature, is ascribing to God a very imperfect work: 'tis violating the grand principle of the necessity of a *sufficient reason;* which many have talked of, without understanding its true meaning; as I have lately shown, in proving, by that principle, that *space* is only an *order* of things, as *time* also is, and not at all an absolute being. To omit many other arguments against a *vacuum* and *atoms*, I shall here mention those which I ground upon *God's perfection*, and upon the *necessity of a sufficient reason.* I lay it down as a principle, that every perfection, which God *could* impart to things without derogating from their other perfections, has actually been imparted to them. Now, let us fancy a *space* wholly empty. God *could* have placed some matter in it, without derogating in any respect from all other things: therefore he hath actually placed some matter in that space: therefore, there is no space wholly *empty:* therefore all is full. The same argument proves that there is no corpuscle, but what is subdivided. I shall add another argument, grounded upon the necessity of a *sufficient reason.* 'Tis *impossible* there should be any principle to determine what proportion of matter there ought to be, out of all the possible degrees from a *plenum* to a *vacuum*, or from a *vacuum* to a *plenum.* Perhaps it

will be said, that the one should be equal to the other: but, because matter is more perfect than a *vacuum*, reason requires that a geometrical proportion should be observed, and that there should be as much more matter than *vacuum*, as the former deserves to have the preference before the latter. But then there must be *no vacuum* at all; for the perfection of matter is to that of a *vacuum*, as *something* to *nothing*. And the case is the same with *atoms:* What reason can any one assign for *confining* nature in the progression of subdivision? These are fictions merely arbitrary, and unworthy of true philosophy. The reasons alleged for a *vacuum*, are mere sophisms.

Mr. Leibnitz's Fifth Paper: Being an answer to Dr. Clarke's Fourth Reply.

To § 1 and 2, of the foregoing paper [Clarke's Fourth Reply.]

1. I shall at this time make a *larger* answer; to clear the difficulties; and to try whether the author be willing to hearken to reason, and to show that he is a lover of truth; or whether he will only cavil, without clearing anything.

2. He often endeavors to impute to me *necessity and fatality;* though perhaps no one has better and more fully explained, than I have done in my *Theodicæa*, the true difference between *liberty*, *contingency*, *spontaneity*, on the one side; and absolute *necessity*, *chance*, *coaction*, on the other. I know not yet, whether the author does this, because he *will* do it, whatever I may say; or whether he does it, (supposing him sincere in those imputations,) because he has *not yet* duly *considered* my opinions. I shall soon find what I am to think of it, and I shall take my measures accordingly.

3. It is true, that *reason* in the *mind* of a wise being, and *motives* in any mind whatsoever, do that which answers to the effect produced by *weights* in a *balance*. The author objects, that this notion leads to *necessity* and *fatality*. But he says so, without proving it, and without taking notice of the explications I have formerly given, in order to remove the difficulties that may be raised upon that head.

4. He seems also to play with *equivocal* terms. There are *necessities*, which ought to be admitted. For we must distinguish between an *absolute* and an *hypothetical necessity*. We must also dis-

tinguish between a *necessity*, which takes place because the opposite implies a contradiction; (which necessity is called *logical*, *metaphysical*, or *mathematical;*) and a *necessity* which is *moral*, whereby a wise being chooses the best, and every mind follows the strongest inclination.

5. *Hypothetical necessity* is that, which the supposition or *hypothesis* of God's *foresight* and *pre-ordination* lays upon *future contingents*. And this must needs be admitted, unless we deny, as the *Socinians* do, God's *foreknowledge of future contingents*, and his *providence* which regulates and governs every particular thing.

6. But neither that *foreknowledge*, nor that *pre-ordination*, derogate from *liberty*. For God, being moved by his supreme reason to choose, among many series of things or worlds possible, that, in which free creatures should take such or such resolutions, though not without his concourse; has thereby rendered every event certain and determined once for all; without derogating thereby from the liberty of those creatures: that simple decree of choice, not at all changing, but only *actualizing* their free natures, which he saw in his ideas.

7. As for *moral* necessity, this also does not derogate from *liberty*. For when a wise being, and especially God, who has supreme wisdom, chooses what is best, he is not the less free upon that account: on the contrary, it is the most perfect liberty, not to be hindered from acting in the best manner. And when any other chooses according to the most apparent and the most strongly inclining good, he imitates therein the liberty of a truly wise being, in proportion to his disposition. Without this, the choice would be a blind chance.

8. But good, either true or apparent; in a word, the motive, inclines without necessitating; that is, without imposing an *absolute necessity*. For when God (for instance,) chooses the best; what he does not choose, and is inferior in perfection, is nevertheless possible. But if what he chooses, was absolutely necessary; any other way would be impossible: which is against the hypothesis. For God chooses among possibles, that is, among many ways, none of which implies a contradiction.

9. But to say, that God can only choose what is *best;* and to infer from thence, that what he does not choose, is impossible; this, I say, is confounding of terms: 'tis blending *power* and *will*,

metaphysical necessity and *moral necessity*, *essences* and *existences*. For what is *necessary*, is so by its essence, since the opposite implies a contradiction; but a contingent which exists, owes its existence to the *principle of what is best*, which is a *sufficient reason* for the existence of things. And therefore I say, that motives incline without necessitating; and that there is a certainty and infallibility, but not an absolute necessity in contingent things. Add to this, what will be said hereafter, *Nos.* 73 *and* 76.

10. And I have sufficiently shown in my *Theodicæa*, that this *moral necessity* is a good thing, agreeable to the divine perfection; agreeable to the great principle or ground of *existences*, which is that of *the want of a sufficient reason:* whereas *absolute and metaphysical necessity*, depends upon the other great principle of our reasonings, *viz.* that of *essences;* that is, the principle of identity or contradiction: for what is absolutely necessary, is the only possible way, and its contrary implies a contradiction.

11. I have also shown, that our *will* does *not* always exactly *follow* the *practical understanding;* because it may have or find *reasons* to *suspend* its resolution till a further examination.

12. To impute to me after this, the notion of an *absolute necessity*, without having anything to say against the *reasons* which I have just now alleged, and which go to the bottom of things, perhaps beyond what is to be seen elsewhere; this, I say, will be an unreasonable obstinacy.

13. As to the notion of *fatality*, which the author lays also to my charge; this is another ambiguity. There is a *fatum Mahometanum*, a *fatum stoicum*, and a *fatum Christianum*. The *Turkish fate* will have an effect to happen, even though its cause should be avoided; as if there was an *absolute necessity*. The *Stoical fate* will have a man to be quiet, because he must have patience whether he will or not, since 'tis impossible to resist the course of things. But 'tis agreed, that there is *fatum Christianum*, a *certain destiny* of every thing, regulated by the foreknowledge and providence of God. *Fatum* is derived from *fari;* that is *to pronounce*, to *decree;* and in its right sense, it signifies the decree of providence. And those who submit to it through a knowledge of the divine perfections, whereof the love of God is a consequence; have not only patience, like the heathen philosophers, but are also contented with what is ordained by God, knowing he does every thing for the best;

and not only for the greatest good in general, but also for the greatest particular good of those who love him.

14. I have been obliged to enlarge, in order to remove ill-grounded imputations once for all; as I hope I shall be able to do by these explications, so as to satisfy equitable persons. I shall now come to an *objection* raised here, against my comparing the *weights* of a *balance* with the *motives* of the *will*. 'Tis objected, that a *balance* is merely *passive*, and moved by the weights; whereas agents intelligent, and endowed with will, are *active*. To this I answer, that the *principle of the want of a sufficient reason* is common both to *agents* and *patients:* they want a *sufficient reason* of their *action*, as well as of their *passion*. A *balance* does not only not act, when it is equally *pulled* on both sides; but the *equal weights* likewise do not act when they are in an *equilibrium*, so that one of them cannot go down without the other's rising up as much.

15. It must also be considered, that, properly speaking, motives do not act upon the mind, as weights do upon a balance; but 'tis rather the mind that acts by virtue of the motives, which are *its dispositions* to act. And therefore to pretend, as the author does here, that the mind prefers sometimes weak motives to strong ones, and even that it prefers that which is *indifferent* before *motives:* this, I say, is to divide the *mind* from the *motives*, as if they were *without the mind*, as the weight is distinct from the balance; and as if the *mind* had, besides *motives*, other *dispositions* to act, by virtue of which it could reject or accept the *motives*. Whereas, in truth, the *motives* comprehend *all the dispositions*, which the mind can have to act voluntarily; for they *include* not only the *reasons*, but also the *inclinations* arising from passions, or other preceding impressions. Wherefore, if the mind should prefer a weak *inclination* to a strong one, it would act against itself, and otherwise than it is disposed to act. Which shows that the author's notions, contrary to mine, are superficial, and appear to have no solidity in them, when they are well considered.

16. To assert also, that the *mind may have good reasons to act*, when it has *no motives*, and *when things are absolutely indifferent*, as the author explains himself here; this, I say, is a manifest contradiction. For if the mind has *good reasons* for taking the *part* it takes, then the things are not *indifferent* to the mind.

17. And to affirm that the mind will act, when it has *reasons* to act, *even though the ways of acting were absolutely indifferent:* this, I say, is to speak again very superficially, and in a manner that cannot be defended. For a man never has a sufficient reason to *act*, when he has not also a sufficient reason to act *in a certain particular manner;* every action being individual, and not general, nor abstract from its circumstances, but always needing some particular way of being put in execution. Wherefore, when there is a sufficient reason to do any particular thing, there is also a sufficient reason to do it in a certain particular manner; and consequently, several manners of doing it are not *indifferent.* As often as a man has sufficient reasons for a single action, he has also sufficient reasons for all its requisites. See also what I shall say below, *No.* 66.

18. These arguments are very obvious: and 'tis very strange to charge me with advancing my principle of *the want of a sufficient reason,* without any proof drawn either from the nature of things, or from the divine perfections. For the *nature of things* requires, that every event should have beforehand its proper conditions, requisites, and dispositions, the existence whereof makes the sufficient reason of such event.

19. And *God's perfection* requires, that all his actions should be agreeable to his wisdom; and that it may not be said of him, that he has acted without reason; or even that he has preferred a weaker reason before a stronger.

20. But I shall speak more largely at the conclusion of this paper, concerning the solidity and importance of this great principle, of the *want of a sufficient reason* in order to every event: the overthrowing of which principle, would overthrow the best part of all philosophy. 'Tis therefore very strange that the author should say, I am herein guilty of a *petitio principii;* and it plainly appears he is desirous to maintain indefensible opinions, since he is reduced to deny that great principle, which is one of the most essential principles of reason.

To § 3 and 4.

21. It must be confessed, that though this great principle has been acknowledged, yet it has not been sufficiently made use of. Which is, in great measure, the reason why the *prima philosophia* has not been hitherto so fruitful and demonstrative, as it should have been. I infer from that principle, among other consequences,

that there are not in nature *two* real, absolute beings, *indiscernible* from each other; because if there were, God and nature would act without reason, in ordering the one otherwise than the other; and that therefore God does not produce *two* pieces of matter perfectly *equal* and *alike*. The author answers this conclusion, without confuting the reason of it; and he answers with a very weak objection. *That argument*, says he, *if it was good, would prove that it would be impossible for God to create any matter at all. For, the perfectly solid parts of matter, if we take them of equal figure and dimensions, (which is always possible in supposition), would be exactly alike.* But 'tis a manifest *petitio principii* to suppose *that perfect likeness*, which, according to me, cannot be admitted. This supposition of two *indiscernibles*, such as two pieces of matter perfectly alike, seems indeed to be *possible* in abstract terms; but it is not consistent with the order of things, nor with the divine wisdom, by which nothing is admitted without reason. The vulgar fancy such things, because they content themselves with incomplete notions. And this is one of the faults of the *atomists*.

22. Besides; I don't admit in matter, parts perfectly *solid*, or that are the same throughout, without any variety or particular *motion* in their parts, as the pretended atoms are imagined to be. To suppose such bodies, is another popular opinion ill-grounded. According to my demonstrations, every part of matter is *actually* subdivided into parts differently *moved*, and no one of them is perfectly *like* another.

23. I said, that in sensible things, *two*, that are *indiscernible* from each other, can never be found; that (for instance) two *leaves* in a garden, or two *drops* of water, perfectly alike, are not to be found. The author acknowledges it as to *leaves*, and *perhaps* as to *drops* of water. But he might have admitted it, without any hesitation, without a *perhaps*, (an *Italian* would say, *senzà forse*,) as to *drops* of water likewise.

24. I believe that these general observations in things *sensible*, hold also in proportion in things *insensible*, and that one may say, in this respect, what *harlequin* says in the *Emperor of the Moon; 'tis there, just as 'tis here.* And 'tis a great objection against *indiscernibles*, that no instance of them is to be found. But the author opposes this consequence, because (says he) *sensible* bodies are *compounded;* whereas he maintains there are *insensible* bodies which

are *simple.* I answer again that I don't admit *simple* bodies. There is nothing *simple*, in my opinion, but true *monads*, which have neither parts nor extension. Simple bodies, and even perfectly similar ones, are a consequence of the false hypothesis of a *vacuum* and of *atoms*, or of *lazy* philosophy, which does not sufficiently carry on the *analysis* of things, and fancies it can attain to the first material elements of nature, because our imagination would be therewith satisfied.

25. When I deny that there are two drops of water perfectly alike, or any two other bodies *indiscernible* from each other; I don't say, 'tis absolutely *impossible* to suppose them; but that 'tis a thing contrary to the divine *wisdom*, and which consequently does not exist.

To § 5 and 6.

26. I own, that if two things perfectly *indiscernible* from each other did exist, they would be *two;* but that supposition is false, and contrary to the grand principle of reason. The vulgar philosophers were mistaken, when they believed that there are things different *solo numero*, or only because they are *two;* and from this error have arisen their perplexities about what they called *the principle of individuation.* Metaphysics have generally been handled like a science of mere *words*, like a philosophical dictionary, without entering into the discussion of *things.* Superficial philosophy, such as is that of the *atomists* and *vacuists*, forges things, which superior reasons do not admit. I hope my demonstrations will change the face of philosophy, notwithstanding such weak objections as the author raises here against me.

27. The *parts* of *time* or *place*, considered *in themselves*, are *ideal* things; and therefore they perfectly resemble one another, like to *abstract units.* But it is not so with two *concrete ones*, or with two *real times*, or two *spaces filled up*, that is, truly *actual.*

28. I don't say that *two* points of space are *one and the same* point, nor that *two* instants of time are *one and the same* instant, as the author seems to charge me with saying. But a man may fancy, for want of knowledge, that there are two different instants, where there is but one: in like manner as I observed in the 17th paragraph of the foregoing answer, that frequently in geometry we suppose *two*, in order to represent the error of a gainsayer, when there is really but *one.* If any man should suppose

that a right line cuts another in *two* points; it will be found after all, that those *two* pretended points must coincide, and make but *one* point.

29. I have demonstrated, that *space* is nothing else but an *order* of the existence of things, observed as existing together; and therefore the fiction of a material finite universe, moving forward in an infinite empty space, cannot be admitted. It is altogether unreasonable and *impracticable*. For, besides that there is *no real space* out of the material universe; such an action would be without any design in it: it would be working without doing anything, *agendo nihil agere*. There would happen *no change*, which could be observed by any person whatsoever. These are imaginations of *philosophers who have incomplete notions*, who make space an absolute reality. Mere mathematicians, who are only taken up with the conceits of imagination, are apt to forge such notions; but they are destroyed by superior reasons.

30. Absolutely speaking, it appears that God *can* make the material universe *finite* in extension; but the contrary appears more agreeable to his wisdom.

31. I don't grant, that *every finite* is *movable*. According to the hypothesis of my adversaries themselves, a *part* of *space*, though *finite*, is not movable. What is movable, must be capable of changing its situation with respect to *something else*, and to be in a new state *discernible* from the first: otherwise the change is but a fiction. A *movable finite*, must therefore make part of *another* finite, that any change may happen which can be *observed*.

32. *Cartesius* maintains, that *matter* is *unlimited;* and I *don't* think he has been sufficiently *confuted*. And though this be granted him, yet it does not follow that matter would be *necessary*, nor that it would have existed from all *eternity;* since that unlimited diffusion of matter, would only be an effect of God's *choice* judging that to be the better.

To § 7.

33. Since *space* in itself is an *ideal* thing, like *time;* space *out of the world* must needs be imaginary, as the *schoolmen* themselves have acknowledged. The case is the same with empty space *within* the world; which I take also to be imaginary, for the reasons before alleged.

34. The author objects against me the *vacuum* discovered by Mr. *Guerike* of *Magdeburg*, which is made by pumping the air out of a *receiver;* and he pretends that there is truly a perfect *vacuum*, or a space without matter (at least in part), in that *receiver*. The *Aristotelians* and *Cartesians*, who do not admit a true *vacuum*, have said in answer to that experiment of Mr. *Guerike*, as well as to that of *Torricellius* of *Florence* (who emptied the air out of a glass-tube by the help of quicksilver), that there is no *vacuum* at all in the tube or in the receiver: since glass has small pores, which the beams of light, the *effluvia* of the loadstone, and other very thin fluids may go through. I am of their opinion: and I think the receiver may be compared to a box full of holes in the water, having fish or other gross bodies shut up in it; which being taken out, their place would nevertheless be filled up with water. There is only this difference; that though water be fluid and more yielding than those gross bodies, yet it is as heavy and massive, if not more, than they: whereas the matter which gets into the receiver in the room of the air, is much more subtile. The new sticklers for a *vacuum* allege in answer to this instance, that it is not the *grossness* of matter, but its mere *quantity*, that makes resistance; and consequently that there is of necessity *more vacuum*, where there is *less resistance*. They add, that the *subtileness* of matters has nothing to do here; and that the particles of *quicksilver* are as *subtile* and *fine* as those of *water;* and yet that *quicksilver* resists above *ten times more*. To this I reply, that it is not so much the *quantity* of matter, as its *difficulty of giving place*, that makes *resistance*. For instance; *floating timber* contains *less* of heavy matter, than an equal bulk of *water* does; and yet it makes *more resistance* to a boat, than the water does.

35. And as for *quicksilver;* 'tis true, it contains about fourteen times more of *heavy* matter, than an equal bulk of *water* does; but it does not follow, that it contains fourteen times more matter absolutely. On the contrary, *water* contains as much matter; if we include both its own matter, which is heavy; and the extraneous matter void of heaviness, which passes through its pores. For, both *quicksilver* and *water*, are masses of heavy matter, full of pores, through which there passes a great deal of matter void of heaviness [and which does not sensibly resist]; such as is probably that of the rays of light, and other insensible fluids; and especially that

which is itself the cause of the gravity of gross bodies, by receding from the center towards which it drives those bodies. For, it is a strange imagination to make all matter gravitate, and that towards all other matter, as if each body did equally *attract* every other body according to their masses and distances; and this by an *attraction* properly so called, which is not derived from an occult impulse of bodies: whereas the gravity of sensible bodies towards the center of the earth, ought to be produced by the motion of some fluid. And the case must be the same with other gravities, such as is that of the planets towards the sun or towards each other. [A body is never moved naturally except by another body which impels it by touching it; and afterwards it advances until it is stopped by another body which touches it. Every other operation on bodies is either miraculous or imaginary.]

To § 8 and 9.

36. I objected, that space, taken for something real and absolute without bodies, would be a thing eternal, impassible, and independent upon God. The author endeavors to elude this difficulty, by saying that space is a property of God. In answer to this, I have said, in my foregoing paper, that the property of God is *immensity;* but that *space* (which is often commensurate with bodies), and God's immensity, are not the same thing.

37. I objected further, that if space be a property, and *infinite space* be the *immensity* of *God; finite space* will be the *extension* or *mensurability* of something *finite.* And therefore the *space* taken up by a *body*, will be the *extension of that body.* Which is an absurdity; since a body can change *space*, but cannot leave its *extension.*

38. I asked also: if space is a *property*, what thing will an empty *limited space*, (such as that which my adversary imagines in an exhausted receiver), be the property of? It does not appear reasonable to say, that this empty space either round or square, is a property of God. Will it be then perhaps the property of some immaterial, extended, imaginary substances, which the author seems to fancy in the imaginary spaces?

39. If space is the property or affection of the substance, which is in space; the *same space* will be sometimes the *affection* of *one*

body, sometimes of *another body*, sometimes of an *immaterial* substance, and sometimes perhaps of *God* himself, when it is void of all other substance material or immaterial. But this is a strange property or *affection*, which *passes from one subject to another*. Thus subjects will leave off their accidents, like clothes; that other subjects may put them on. At this rate, how shall we distinguish accidents and substances?

40. And if *limited spaces* are the *affections* of *limited substances*, which are in them; and *infinite space* be a property of *God;* a property of God must (which is very strange), be made up of the affections of creatures; for all finite spaces taken together make up infinite space.

41. But if the author denies, that *limited space* is an *affection* of *limited things;* it will not be reasonable neither, that *infinite space* should be the *affection* or property of an *infinite thing*. I have suggested all these difficulties in my foregoing paper: but it does not appear that the author has endeavored to answer them.

42. I have still other reasons against this strange imagination, that space is a property of God. If it be so, space belongs to the *essence* of God. But space has *parts:* therefore there would be *parts* in the *essence* of God. *Spectatum admissi.*

43. Moreover, spaces are sometimes empty, and sometimes filled up. Therefore there will be in the essence of God, parts sometimes empty and sometimes full, and consequently liable to a perpetual *change*. Bodies, filling up space, would fill up part of God's essence, and would be commensurate with it; and in the supposition of a *vacuum*, part of God's essence will be within the *receiver*. Such a *God having parts*, will very much resemble the *Stoic's* God, which was the whole universe considered as a divine animal.

44. If infinite *space* is God's *immensity*, infinite *time* will be God's *eternity;* and therefore we must say, that what is in space, is in God's immensity, and consequently in his essence; and that what is in time, is also in the essence of God. *Strange* expressions; which plainly show, that the author makes a wrong use of terms.

45. I shall give another instance of this. God's immensity makes him actually present in all spaces. But now if God is *in* space, how can it be said that space is *in* God, or that it is a property of God? We have often heard, that a property is in its subject; but

we never heard, that a subject is in its property. In like manner, God exists *in* all time. How then can time be *in* God; and how can it be a property of God? These are perpetual *alloglossies.*

46. It appears that the author confounds immensity, or the *extension of things*, with the *space* according to which that extension is taken. Infinite space is not the immensity of God; finite space is not the extension of bodies: as time is not their duration. Things keep their extension, but they do not always keep their space. Everything has its own extension, its own duration; but it has not its own time, and does not keep its own space.

47. I will here show, *how* men come to form to themselves the notion of *space.* They consider that many things exist at once, and they observe in them a certain *order* of co-existence, according to which the relation of one thing to another is more or less simple. This order is their *situation* or distance. When it happens that one of those co-existent things changes its *relation* to a multitude of others, which do not change their relation among themselves; and that another thing, newly come, acquires the same relation to the others, as the former had; we then say it is come into the *place* of the former; and this change, we call a *motion* in that body, wherein is the immediate cause of the change. And though many, or even all the co-existent things, should change according to certain known rules of direction and swiftness; yet one may always determine the relation of situation, which every co-existent acquires with respect to every other co-existent; and even that relation, which any other co-existent would have to this, or which this would have to any other, if it had not changed, or if it had changed any otherwise. And supposing, or feigning, that among those co-existents, there is a sufficient number of them, which have undergone no change; then we may say, that those which have such a *relation* to those fixed existents, as others had to them before, have now the same *place* which those others had. And that which comprehends *all those places*, is called *space.* Which shows, that in order to have an idea of *place*, and consequently of space, it is sufficient to consider these *relations*, and the rules of their changes, without needing to fancy any absolute reality *out of* the things whose situation we consider, and, to give a kind of definition: *place* is that, which we say is the same to A, and to B, when the *relation* of the co-existence of B, with C, E, F, G, *&c.*, agrees perfectly with the

relation of the co-existence, which *A* had with the same *C*, *E*, *F*, *G*, *&c.*, supposing there has been no cause of change in *C*, *E*, *F*, *G*, *&c.* It might be said also, without entering into any further particularity, that *place* is that, which is the same in different moments to different existent things, when their *relations of co-existence* with certain other existents, which are supposed to continue fixed from one of those moments to the other, agree entirely together. And *fixed existents* are those, in which there has been no cause of any change of the *order* of their co-existence with others; or (which is the same thing), in which there has been no *motion*. Lastly, *space* is that which results from *places taken together*. And here it may not be amiss to consider the difference between *place*, and the *relation of situation*, which is in the body that fills up the place. For, the *place* of *A* and *B*, is the *same*; whereas the *relation* of *A* to fixed bodies, is not precisely and individually the *same*, as the relation which *B* (that comes into its place) will have to the same fixed bodies; but these relations *agree* only. For two different subjects, as *A* and *B*, cannot have precisely the *same* individual affection; it being impossible, that the same individual accident should be in two subjects, or pass from one subject to another. But the mind not contented with an agreement, looks for an identity, for something that should be truly the same; and conceives it as being extrinsic to the subject: and this is what we here call *place* and *space*. But this can only be an ideal thing; containing a certain *order*, wherein the mind conceives the application of relations. In like manner, as the mind can fancy to itself an *order* made up of *genealogical lines*, whose bigness would consist only in the number of generations, wherein every person would have his place: and if to this one should add the fiction of a *metempsychosis*, and bring in the *same* human souls again; the persons in those lines might change place; he who was a father, or a grand-father, might become a son, or a grand-son, &c. And yet those genealogical *places*, *lines*, and *spaces*, though they should express real truths, would only be ideal things. I shall allege another example, to show how the mind uses, upon occasion of accidents which are *in* subjects, to fancy to itself something answerable to those accidents, *out of* the subjects. The *ratio* or *proportion* between two lines *L* and *M*, may be conceived three several ways; as a *ratio* of the greater *L* to the lesser *M*; as a ratio of the lesser *M* to

the greater *L;* and lastly, as something abstracted from both, that is, as the *ratio* between *L* and *M*, without considering which is the antecedent, or which the consequent; which the subject, and which the object. And thus it is, that proportions are considered in music. In the first way of considering them, *L* the greater; in the second, *M* the lesser, is the subject of that accident, which philosophers call *relation.* But, which of them will be the subject, in the third way of considering them? It cannot be said that both of them, *L* and *M* together, are the subject of such an accident; for if so, we should have an accident in two subjects, with one leg in one, and the other in the other; which is contrary to the notion of accidents. Therefore we must say that this relation, in this third way of considering it, is indeed *out of* the subjects; but being neither a substance, nor an accident, it must be a mere ideal thing, the consideration of which is nevertheless useful. To conclude: I have here done much like *Euclid*, who not being able to make his readers well understand what *ratio* is absolutely in the sense of geometricians; defines what are the *same ratios.* Thus, in like manner, in order to explain what *place* is, I have been content to define what is the *same place.* Lastly; I observe, that the traces of movable bodies, which they leave sometimes upon the immovable ones on which they are moved; have given men occasion to form in their imagination such an idea, as if some trace did still remain, even when there is nothing unmoved. But this is a mere ideal thing, and imports only, that *if there was any unmoved thing there, the trace might be marked out upon it.* And 'tis this analogy, which makes men fancy *places*, *traces* and *spaces*; though those things consist only in the truth of *relations*, and not at all in any absolute reality.

48. To conclude. If the space (which the author fancies) void of all bodies, is not altogether empty; what is it then full of? Is it full of extended spirits perhaps, or immaterial substances, capable of extending and contracting themselves; which move therein, and penetrate each other without any inconveniency, as the shadows of two bodies penetrate one another upon the surface of a wall? Methinks I see the revival of the *odd* imaginations of Dr. *Henry More* (otherwise a learned and well-meaning man), and of some others, who fancied that those spirits can make themselves impenetrable whenever they please. Nay, some have fancied, that *man*

in the state of innocency, had also the gift of penetration; and that he became solid, opaque, and impenetrable by his fall. Is it not overthrowing our notions of things, to make God have parts, to make spirits have extension? The principle of the *want of a sufficient reason* does alone drive away all these spectres of imagination. Men easily run into fictions, for want of making a right use of that great principle.

To § 10.

49. It cannot be said, that [a certain] *duration* is eternal; but that *things*, which continue always, are eternal, [by gaining always new duration.] Whatever exists of time and of duration, [being successive] perishes continually: and how can a thing exist eternally, which, (to speak exactly,) does never exist at all? For, how can a thing exist, whereof no part does ever exist? Nothing of time does ever exist, but instants; and an instant is not even itself a part of time. Whoever considers these observations, will easily apprehend that time can only be an ideal thing. And the analogy between time and space, will easily make it appear, that the one is as merely ideal as the other. [However, if by saying that the duration of a thing is eternal, is merely understood that it lasts eternally, I have no objection.]

50. If the reality of space and time, is necessary to the immensity and eternity of God; if God must be in space; if being in space, is a property of God; he will, in some measure, depend upon time and space, and stand in need of them. For I have already prevented that subterfuge, that space and time are [in God and as it were] *properties* of God. [Could the opinion which should affirm that bodies move about in the parts of the divine essence be maintained?]

To § 11 and 12.

51. I objected that space cannot be in God, because it has *parts*. Hereupon the author seeks another subterfuge, by departing from the received sense of words; maintaining that space has no parts, because its parts are not separable, and cannot be removed from one another by discerption. But 'tis sufficient that space has parts, whether those parts be separable or not; and they may be assigned in space, either by the bodies that are in it, or by lines and surfaces that may be drawn and described in it.

To § 13.

52. In order to prove that space, without bodies, is an absolute reality; the author objected, that a finite material universe might *move forward* in space. I answered, it does not appear *reasonable* that the material universe should be *finite;* and, though we should suppose it to be finite; yet 'tis *unreasonable* it should have *motion* any otherwise, than as its parts change their situation among themselves; because such a motion would produce *no change* that could be observed, and would be without design. 'Tis another thing, when its parts change their situation among themselves; for then there is a *motion in space;* but it consists in the *order of relations* which are changed. The author replies now, that the reality of motion does not depend upon being *observed;* and that a ship may go forward, and yet a man, who is in the ship, may not perceive it. I answer, motion does not indeed depend upon being *observed;* but it does depend upon being *possible to be observed.* There is no *motion,* when there is no *change that can be observed.* And when there is no *change that can be observed,* there is *no change at all.* The contrary opinion is grounded upon the supposition of a real absolute space, which I have demonstratively confuted by the principle of the *want of a sufficient reason* of things.

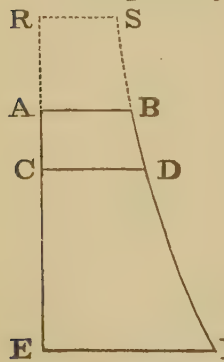
53. I find nothing in the *eighth definition of the Mathematical Principles of Nature,* nor in the *scholium belonging to it,* that proves, or can prove, the reality of space in itself. However, I grant there is a *difference* between *an absolute true motion of a body,* and a *mere relative change of its situation with respect to another body.* For when the immediate cause of the change is in the body, that body is truly in motion; and then the situation of other bodies, with respect to it, will be changed consequently, though the cause of that change be not in them. 'Tis true that, exactly speaking, there is not any one body, that is perfectly and entirely at rest; but we frame an abstract notion of rest, by considering the thing mathematically. Thus have I left nothing unanswered, of what has been alleged for the absolute reality of space. And I have demonstrated the falsehood of that reality, by a fundamental principle, one of the most certain both in reason and experience; against which, no exception or instance can be alleged. Upon the whole, one may judge from what has been said, that I ought not to admit a *movable universe;* nor any *place* out of the material universe.

To § 14.

54. I am not sensible of any objection, but what I think I have sufficiently answered. As for the objection that *space* and *time* are *quantities*, or rather things *endowed with quantity;* and that *situation* and *order* are not so: I answer, that *order* also has its quantity; there is in it, that which goes before, and that which follows; there is distance or interval. *Relative* things have their *quantity*, as well as *absolute* ones. For instance, *ratios* or *proportions* in mathematics, have their *quantity*, and are *measured* by *logarithms;* and yet they are *relations*. And therefore though *time* and *space* consist in *relations*, yet they have their *quantity*.

To § 15.

55. As to the question, whether God could have created the world *sooner;* 'tis necessary here to understand each other rightly. Since I have demonstrated, that *time*, without things, is nothing else but a mere ideal possibility; 'tis manifest, if any one should say that this same world, which has been actually created, might have been created *sooner*, without any other change; he would say *nothing that is intelligible*. For there is no mark or difference, whereby it would be possible to know, that this world was created *sooner*. And therefore, (as I have already said), to suppose that God created the same world *sooner*, is supposing a chimerical thing. 'Tis making *time* a thing absolute, independent upon God; whereas *time* must co-exist with creatures, and is only conceived by the *order* and *quantity* of their changes.



56. But yet absolutely speaking, one *may conceive* that an universe began *sooner*, than it actually did. Let us suppose our universe, or any other, to be represented by the figure *A F;* and that the ordinate *A B* represents its first state; and the ordinates *C D*, *E F*, its following states: I say, one *may conceive* that such a world began *sooner*, by conceiving the figure prolonged backwards, and by adding to it *S R A B S*. For thus, *things* being increased, *time* will be also increased. But whether such an augmentation be *reasonable* and agreeable to God's wisdom, is another question, to which we answer in the

negative; otherwise God *would* have made such an augmentation. It would be like as

Humano capiti cervicem pictor equinam
Jungere si velit.

The case is the same with respect to the *destruction* [duration—*Ger.*] of the universe. As one *might conceive* something added to the beginning, so one *might also conceive* something taken off towards the end. But such a retrenching from it, would be also *unreasonable.*

57. Thus it appears how we are to understand, that God created things at what *time* he *pleased;* for this depends upon the *things*, which he resolved to create. But *things* being once resolved upon, together with their *relations;* there remains no longer any choice about the *time* and the *place*, which of themselves have nothing in them real, nothing that can distinguish them, nothing that is at all discernible.

58. One cannot therefore say, as the author does here, that the wisdom of God may have *good reasons* to create this world at *such* or *such a particular time:* that particular time, considered without the *things*, being an *impossible* fiction; and *good reasons* for a choice, being not to be found, where everything is indiscernible.

59. When I speak of this *world*, I mean the whole *universe* of material and immaterial creatures taken together, from the beginning of things. But if any one mean only the beginning of the *material* world, and suppose *immaterial* creatures before it; he would have somewhat more reason for his supposition. For *time* then being *marked* by things that existed already, it would be no longer indifferent; and there might be room for choice. And yet indeed, this would be only putting off the difficulty. For, supposing the whole universe of immaterial and material creatures together, to have a beginning; there is no longer any choice about the *time*, in which God would place that beginning.

60. And therefore one must not say, as the author does here, that God created things in what particular *space*, and at what particular *time* he *pleased.* For, all time and all spaces being in themselves perfectly uniform and indiscernible from each other, one of them cannot *please* more than another.

61. I shall not enlarge here upon my opinion explained elsewhere, that there are no created substances wholly destitute of matter. For I hold with the ancients, and according to reason, that angels or intelligences, and souls separated from a gross body, have always subtile bodies, though they themselves be incorporeal. The vulgar philosophy easily admits all sorts of fictions: mine is more strict.

62. I don't say that matter and space are the same thing. I only say, *there is no space, where there is no matter;* and that space in itself is not an absolute reality. Space and matter differ, as time and motion. However, these things, though different, are *inseparable.*

63. But yet it does not at all follow, that matter is eternal and necessary; unless we suppose *space* to be eternal and necessary; a supposition ill-grounded in all respects.

To § 16 and 17.

64. I think I have answered everything; and I have particularly replied to that objection, that *space* and *time* have *quantity*, and that *order* has none. *See above, Number* 54.

65. I have clearly shown that the contradiction lies in the hypothesis of the opposite opinion, which looks for a difference where there is none. And it would be a manifest iniquity to infer from thence, that I have acknowledged a contradiction in my own opinion.

To § 18.

66. Here I find again an argument, which I have overthrown above, *Number* 17. The author says, God may have *good reasons* to make two cubes perfectly equal and alike: and then (says he) God must needs assign them their places, though every other respect be perfectly equal. But things ought not to be separated from their circumstances. This argument consists in incomplete notions. God's resolutions are never abstract and imperfect: as if God decreed, first, to create the two cubes; and then, made another decree where to place them. Men, being such limited creatures as they are, may act in this manner. They may resolve upon a thing, and then find themselves perplexed about means, ways, places, and circumstances. But God never takes a resolution about the ends, without resolving at the same time about the means, and all the circumstances. Nay, I have shown in my *Theodicæa*, that properly

speaking, there is but one decree for the whole universe, whereby God resolved to bring it out of possibility into existence. And therefore God will not choose a cube, without choosing its place at the same time; and he will *never choose* among *indiscernibles.*

67. The parts of space are not determined and distinguished, but by the things which are in it: and the diversity of things in space, determines God to act differently upon different parts of space. But space without things, has nothing whereby it may be distinguished; and indeed not anything *actual.*

68. If God is resolved to place a certain cube of matter at all, he is also resolved in which particular place to put it. But 'tis with respect to other parts of matter; and not with respect to bare space itself, in which there is nothing to distinguish it.

69. But wisdom does not allow God to place at the same time *two cubes perfectly equal and alike;* because there is no way to find any *reason* for assigning them different places. At this rate, there would be *a will without a motive.*

70. A *will without motive* (such as superficial reasoners suppose to be in God), I compared to *Epicurus's chance.* The author answers; *Epicurus's chance* is a blind necessity, and not a choice of will. I reply, that *Epicurus's chance* is not a necessity, but something indifferent. *Epicurus* brought it in on purpose to avoid necessity. 'Tis true, chance is blind; but a *will without motive* would be no less blind, and no less owing to mere chance.

To § 19.

71. The author repeats here, what has been already confuted above, *Number* 21; that matter cannot be created, without God's choosing among indiscernibles. He would be in the right, if matter consisted of atoms, similar particles, or other the like fictions of superficial philosophy. But that great principle, which proves there is no choice among indiscernibles, destroys also these ill-contrived fictions.

To § 20.

72. The author objected against me in his *third paper* (*Numbers 7 and* 8); that God would not have in himself a principle of acting, if he was determined by things *external.* I answered, that the ideas of external things are in him: and that therefore he is determined by internal reasons, that is, by his wisdom. But the author here will not understand, to what end I said it.

To § 21.

73. He frequently confounds, in his objections against me, what God *will not* do, with what he *cannot* do. *See above, Number* 9 [*and below Number* 76]. For example; God *can* do everything that is possible, but he *will* do only what is best. And therefore I don't say, as the author here will have it, that God *cannot* limit the extension of matter; but 'tis likely he *will not* do it, and that he has thought it better to set no bounds to matter.

74. From extension to duration, *non valet consequentia.* Though the *extension* of matter were unlimited, yet it would not follow that its *duration* would be also unlimited; nay even *à parte ante*, it would not follow, that it had no beginning. If it is the nature of things in the whole, to grow uniformly in perfection; the universe of creatures must have had a beginning. And therefore, there will be reasons to limit the *duration* of things, even though there were none to limit their extension. Besides, the world's having a beginning, does not derogate from the infinity of its duration *à parte post;* but bounds of the universe would derogate from the infinity of its extension. And therefore it is more reasonable to admit a beginning of the world, than to admit any bounds of it; that the character of its infinite author, may be in both respects preserved.

75. However, those who have admitted the *eternity* of the world, or, at least, (as some famous divines have done), the *possibility* of its eternity; did not, for all that, deny its dependence upon God; as the author here lays to their charge, without any ground.

To § 22, 23.

76. He here further objects, without any reason, that, according to my opinion, whatever God *can* do, he *must needs* have done. As if he was ignorant, that I have solidly confuted this notion in my *Theodicæa;* and that I have overthrown the opinion of those, who maintain that there is nothing possible but what really happens; as some ancient philosophers did, and among others *Diodorus* in *Cicero.* The author confounds *moral necessity*, which proceeds from the choice of what is *best* with *absolute necessity:* he confounds the *will* of God, with his *power.* God *can* produce everything that is possible, or whatever does not imply a contradiction; but he *wills* only to produce what is the *best* among things possible. *See what has been said above, Number* 9 [*and Number* 74.]

77. God is not therefore a *necessary agent* in producing creatures, since he acts with choice. However, what the author adds here, is ill-grounded, *viz.* that a *necessary agent* would not be an agent at all. He frequently affirms things boldly, and without any ground; advancing [against me] notions which cannot be proved.

To § 24–28.

78. The author alleges, it was not affirmed that space is God's *sensorium*, but only *as it were* his *sensorium*. The latter seems to be as improper, and as little intelligible, as the former.

To § 29.

79. *Space* is not the place of all things; for it is not the place of *God*. Otherwise there would be a thing co-eternal with God, and independent upon him; nay, he himself would depend upon *it*, if he has need of *place*.

80. Nor do I see, how it can be said, that *space* is the *place of ideas;* for *ideas* are in the *understanding*.

81. 'Tis also very strange to say, that the *soul of man* is the *soul of the images* it perceives. The *images*, which are in the understanding, are in the mind: but if the mind was the *soul of the images*, they would then be extrinsic to it. And if the author means *corporeal images*, how then will he have a *human mind* to be the *soul of those images*, they being only transient impressions in a body belonging to that soul?

82. If 'tis by *means* of a *sensorium*, that God perceives what passes in the world; it seems that things act upon him; and that therefore he is what we mean by *a soul of the world*. The author charges me with repeating objections, without taking notice of the answers; but I don't see that he has answered this difficulty. They had better *wholly lay aside* this pretended *sensorium*.

To § 30.

83. The author speaks, as if he did not understand, how, according to my opinion, the *soul* is a *representative principle*. Which is, as if he had never heard of my *pre-established harmony*.

84. I don't assent to the vulgar notions, that the *images of things* are *conveyed* by the *organs* [of sense] to the *soul*. For, it is not conceivable by what passage, or by what means of conveyance, these images can be carried from the organ to the soul. This

vulgar notion in philosophy is not intelligible, as the new *Cartesians* have sufficiently shown. It cannot be explained, how *immaterial* substance is affected by *matter:* and to maintain an unintelligible notion thereupon, is having recourse to the scholastic chimerical notion of I know not what inexplicable *species intentionales*, passing from the organs to the soul. Those *Cartesians* saw the difficulty; but they could not explain it. They had recourse to a [certain wholly special] concourse of God, which would really be miraculous. But, I think, *I have given* the *true solution* of that *enigma.*

85. To say that God perceives what passes in the world, because he is *present* to the things, and not by [the dependence which the continuation of their existence has upon him and which may be said to involve] a *continual production* of them; is saying something unintelligible. A mere *presence* or proximity of co-existence, is not sufficient to make us understand, how that which passes in one being, should answer to what passes in another.

86. Besides; this is exactly falling into that opinion, which makes God to be the *soul of the world;* seeing it supposes God to perceive things, not by their dependence upon him, that is, by a *continual production* of what is good and perfect in them; but by a kind of perception, such as that by which men fancy our soul perceives what passes in the body. This is a degrading of God's knowledge very much.

87. In truth and reality, this way of perception is wholly chimerical, and has no place even in *human souls.* They perceive what passes *without* them, by what passes *within* them, answering to the things without; in virtue of the *harmony*, which God has pre-established by the most beautiful and the most admirable of all his productions; whereby *every simple substance* is by its nature (if one may so say), a *concentration*, and a *living mirror* of the *whole universe*, according to its *point of view.* Which is likewise one of the most beautiful and most undeniable proofs of the existence of God; since none but God, *viz.* the universal cause, can produce such a harmony of things. But God himself cannot perceive things by the same means whereby he makes other beings perceive them. He perceives them, because he is able to produce that means. And other beings would not be caused to perceive them, if he himself did not produce them all *harmonious*, and had not

therefore in himself a representation of them; not as if that representation came from the things, but because the things proceed from him, and because he is the efficient and exemplary cause of them. He perceives them, because they proceed from him; if one may be allowed to say, that he *perceives* them: which ought not to be said, unless we divest that word of its imperfection; for else it seems to signify, that things act upon him. They exist, and are known to him, because he understands and wills them; and because what he wills, is the same, as what exists. Which appears so much the more, because he makes them to be perceived by one another; and makes them perceive one another in consequence of the natures which he has given them once for all, and which he keeps up only according to the laws of every one of them severally; which, though different one from another, yet terminate in an exact correspondence of the results of the whole. This surpasses all the ideas, which men have generally framed concerning the divine perfections, and the works of God; and raises [*our notion of*] them, to the highest degree; as Mr. *Bayle* has acknowledged, though he believed, without any ground, that it exceeded possibility.

88. To infer from that passage of Holy Scripture, wherein God is said to have rested from his works, that there is no longer a *continual production* of them; would be to make a very ill use of that text. 'Tis true, there is no production of *new* simple substances: but it would be wrong to infer from thence, that God is now in the world, only as the soul is conceived to be in the body, *governing it merely* by his presence, without any concourse being necessary to continue its existence.

To § 31.

89. The *harmony*, or correspondence between the *soul* and the *body*, is not a perpetual *miracle;* but the effect or consequence of an original miracle worked at the creation of things; as all natural things are. Though indeed it is a perpetual *wonder*, as many natural things are.

90. The word, *pre-established harmony*, is a term of art, I confess; but 'tis not a term that explains nothing, since it is made out very intelligibly; and the author alleges nothing, that shows there is any difficulty in it.

91. The nature of *every simple substance*, *soul*, or *true monad*, being such, that its following state is a consequence of the preceding one; here now is the cause of the *harmony* found out. For God needs only to make a *simple substance* become *once* and from the beginning, a *representation of the universe*, according to its *point of view;* since from thence alone it follows, that it will be so *perpetually;* and that *all simple substances* will always have a *harmony* among themselves, because they always *represent* the same *universe.*

To § 32.

92. 'Tis true, that, according to me, the *soul* does not disturb the laws of the *body*, nor the *body* those of the *soul;* and that the *soul* and *body* do *only agree* together; the one acting freely, according to the rules of final causes; and the other acting *mechanically*, according to the laws of efficient causes. But this does not derogate from the liberty of our souls, as the author here will have it. For, every agent which acts [with choice—*Ger.*] according to final causes, is free, though it happens to agree with an agent acting only by efficient causes without knowledge, or *mechanically;* because God, foreseeing what the free cause would do, did from the beginning regulate the *machine* in such manner, that it cannot fail to *agree* with that free cause. Mr. *Jaquelot* has very well resolved this difficulty, in one of his books against Mr. *Bayle;* and I have cited the passage, in my *Theodicæa*, Part I, § 63. I shall speak of it again below, *Number* 124.

To § 33.

93. I don't admit, that every *action* gives a *new force* to the *patient.* It frequently happens in the concourse of bodies, that each of them preserves its *force;* as when two equal hard bodies meet directly. Then the direction only is changed, without any change in the *force;* each of the bodies receiving the direction of the other, and going back with the same *swiftness* it came.

94. However, I am far from saying that it is *supernatural* to give a *new force* to a body; for I acknowledge that one body does frequently receive a new *force* from another, which loses as much of its own. But I say only, 'tis *supernatural* that the whole *universe of bodies* should receive a *new force;* and consequently that one body should acquire any new *force*, without the loss of as

much in others. And therefore I say likewise, 'tis an indefensible opinion to suppose the *soul* gives *force* to the *body;* for then the whole universe of bodies would receive a *new force.*

95. The author's *dilemma* here, is ill-grounded; *viz.* that according to me, either a man must act supernaturally, or be a mere *machine*, like a watch. For, man does not act supernaturally: and his body is truly a *machine*, acting only *mechanically;* and yet his *soul* is a free cause.

To § 34 and 35.

96. I here refer to what has been or shall be said in this paper, *Number* 82, 86, [88] *and* 111: concerning the comparison between *God* and a *soul of the world;* and how the opinion contrary to mine, brings the one of these too near to the other.

To § 36.

97. I here also refer to what I have before said, concerning the *harmony* between the *soul* and the *body*, Number 89, &c.

To § 37.

98. The author tells us, that the soul is not in the brain, but in the *sensorium;* without saying what that *sensorium* is. But supposing that *sensorium* to be extended, as I believe the author understands it; the same difficulty still remains, and the question returns, whether the soul be diffused through that whole extension, be it great or small. For, more or less in bigness, is nothing to the purpose here.

To § 38.

99. I don't undertake here to establish my *Dynamics*, or my doctrine of *forces:* this would not be a proper place for it. However, I can very well answer the objection here brought against me. I have affirmed that *active forces* are preserved in the world [*without diminution*]. The author objects, that two *soft* or unelastic bodies meeting together, lose some of their *force.* I answer, no. 'Tis true, their *wholes* lose it with respect to their total motion; but their *parts* receive it, being shaken [internally] by the force of the concourse. And therefore that loss of *force*, is only in appearance. The *forces* are not destroyed, but scattered among the small parts. The bodies do not *lose* their *forces;* but the case here is the same, as when men change great money into small. However, I agree that

the *quantity of motion* does not remain the same; and herein I approve what Sir *Isaac Newton* says, *page* 341 of his *Optics*, which the author here quotes. But I have shown elsewhere, that there is a difference between the quantity of *motion*, and the quantity of *force*.

To § 39.

100. The author maintained against me, that *force* does naturally *lessen* in the material universe; and that this arises from the dependence of things, (*Third Reply*, § 13 *and* 14). In my *third answer*, I desired him to prove that this imperfection is a consequence of the dependence of things. He avoids answering my demand; by falling upon an incident, and denying this to be an imperfection. But whether it be an imperfection or not, he should have proved that 'tis a consequence of the dependence of things.

101. However; that which would make the machine of the world as imperfect, as that of an unskillful watchmaker; surely must needs be an imperfection.

102. The author says now, that it is a consequence of the *inertia* of matter. But this also, he will not prove. That *inertia*, alleged here by *him*, mentioned by *Kepler*, repeated by *Cartesius* [in his letters], and made use of by *me* in my *Theodicæa*, in order to give a notion [and at the same time an example] of the natural imperfection of creatures; has no other effect, than to make the velocities diminish, when the quantities of matter are increased: but this is without any *diminution of the forces*.

To § 40.

103. I maintained, that the dependence of the machine of the world upon its divine author, is rather a reason why there can be no such imperfection in it; and that the work of God does not want to be set right again; that it is not liable to be disordered; and lastly, that it cannot lessen in perfection. Let any one guess now, how the author can hence infer against me, as he does, that, if this be the case, then the material world must be *infinite* and *eternal*, without any beginning; and that God must always have created *as many* men and other kinds of creatures, as *can possibly* be created.

To § 41.

104. I don't say, that space is an *order* or *situation*, which makes things capable of being *situated:* this would be nonsense. Any

one needs only consider my own words, and add them to what I said above, (*Number* 47) in order to show how the mind comes to form to itself an idea of *space*, and yet that there needs not be any real and absolute being answering to that idea, distinct from the mind, and from all relations. I don't say therefore, that *space* is an *order or situation*, but an *order of situations;* or [an order] according to which, situations are disposed; and that *abstract space* is *that order of situations*, when they are conceived as being possible. Space is therefore something [*merely*] ideal. But, it seems, the author will not understand me. I have already, in this paper, (*Number* 54) answered the objection, that *order* is not capable of *quantity.*

105. The author objects here, that *time* cannot be an *order of successive things*, because the *quantity of time* may become *greater* or *less*, and yet the *order of successions* continue the *same.* I answer: this is not so. For if the *time* is *greater*, there will be *more* successive and like states interposed; and if it be *less*, there will be *fewer;* seeing there is no *vacuum*, nor condensation, nor penetration (if I may so speak), in *times*, any more than in *places.*

106. 'Tis true, [I maintain that] the immensity and eternity of God would subsist, though there were no creatures; but those attributes would have no dependence either on *times* or *places.* If there were no creatures, there would be neither *time* nor *place*, and consequently no actual *space.* The immensity of God is independent upon *space*, as his eternity is independent upon *time.* These attributes signify only [in respect to these two orders of things], that God would be present and co-existent with all the things that should exist. And therefore I don't admit what's here alleged, that if God existed alone, there would be *time* and *space* as there is now; whereas then, in my opinion, they would be only in the ideas of God as mere possibilities. The immensity and eternity of God are things more *transcendent*, than the duration and extension of creatures; not only with respect to the *greatness*, but also to the *nature* of the things. Those divine attributes do not imply the supposition of things extrinsic to God, such as are actual *places* and *times.* These truths have been sufficiently acknowledged by *divines* and *philosophers.*

To § 42.

107. I maintained, that an operation of God, by which he should mend the machine of the material world, tending in its nature (as

this author pretends) to lose all its motion, would be a *miracle*. His answer was; that it would not be a miraculous operation, because it would be *usual*, and must frequently happen. I replied; that 'tis not *usualness* or *unusualness*, that makes a *miracle* properly so called, or a miracle of the highest sort; but its *surpassing the powers of creatures;* and that this is the [*general*] opinion of *divines* and *philosophers:* and that therefore the author acknowledges *at least*, that the thing he introduces, and I disallow, is, according to the *received notion*, a miracle of the highest sort, that is, one which surpasses all created powers: and that this is the very thing which all men endeavor to avoid in philosophy. He answers now, that this is appealing from *reason* to *vulgar opinion*. But I reply again, that this vulgar opinion, according to which we ought in philosophy to avoid, as much as possible, what surpasses the natures of creatures; is a very reasonable opinion. Otherwise nothing will be easier than to account for anything by bringing in the Deity, *Deum ex machina*, without minding the natures of things.

108. Besides; the *common* opinion of *divines*, ought not to be looked upon merely as *vulgar opinion*. A man should have *weighty reasons*, before he ventures to contradict it; and I see no such reasons here.

109. The author seems to depart from his own notion, according to which a miracle ought to be unusual; when, in § 31, he objects to me (though without any ground), that the *pre-established harmony* would be a perpetual *miracle*. Here, I say, he seems to depart from his own notion; unless he had a mind to argue against me *ad hominem*.

To § 43.

110. If a *miracle* differs from what is *natural*, only in appearance and with *respect to us;* so that we call that only a *miracle*, which we seldom see; there will be no *internal real difference*, between a *miracle* and what is *natural;* and at the bottom, every thing will be either equally *natural*, or equally *miraculous*. Will *divines* like the former, or *philosophers* the latter?

111. Will not this doctrine, moreover, tend to make *God* the *soul of the world;* if all his operations are *natural*, like those of our souls upon our bodies? And so *God* will be a part of *nature*.

112. In good philosophy, and sound theology, we ought to distinguish between what is explicable by the *natures* and *powers* of *creatures*, and what is explicable only by the *powers* of the *infinite substance*. We ought to make an infinite difference between the *operation of God*, which goes beyond the extent of *natural powers;* and the *operations* of things that follow the law which God has given them, and which he has enabled them to follow *by their natural powers*, though not without his assistance.

113. This overthrows *attractions*, properly so called, and other operations inexplicable by the natural powers of creatures; which kinds of operations, the assertors of them must suppose to be effected by *miracle;* or else have recourse to absurdities, that is, to the *occult qualities* of the schools; which some men begin to revive under the specious name of *forces;* but they bring us back again into the kingdom of darkness. This is, *inventa fruge, glandibus vesci.*

114. In the time of Mr. *Boyle*, and other excellent men, who flourished in *England* under *Charles* the IId, nobody would have ventured to publish such chimerical notions. I hope that happy time will return under so good a government as the present [and that minds a little too much carried away by the misfortune of the times will betake themselves to the better cultivation of sound learning]. Mr. *Boyle* made it his chief business to inculcate, that everything was done *mechanically* in natural philosophy. But it is men's misfortune to grow, at last, out of conceit with reason itself, and to be weary of light. *Chimeras* begin to appear again, and they are pleasing because they have something in them that is wonderful. What has happened in *poetry*, happens also in the *philosophical world*. People are grown weary of rational *romances*, such as were the *French Clelia*, or the *German Aramene;* and they are become fond again of the *tales of fairies*.

115. As for the *motions of the celestial bodies*, and even the *formation of plants* and *animals;* there is nothing in them that looks like a *miracle*, except their *beginning*. The *organism* of *animals* is a *mechanism*, which supposes a divine *pre-formation*. What follows upon it, is purely natural, and entirely *mechanical*.

116. *Whatever* is performed in the *body of man*, and of every *animal*, is no less *mechanical*, than what is performed in a *watch*. The difference is only such, as ought to be between a *machine* of

divine invention, and the workmanship of such a limited artist as *man* is.

To § 44.

117. There is no difficulty among divines, about the *miracles of angels*. The question is only about the use of that word. It may be said that *angels* work *miracles;* but less properly so called, or of an inferior order. To dispute about this, would be a mere question about a word. It may be said that the *angel*, who carried *Habakkuk* through the air, and he who troubled the water of the pool of *Bethesda*, worked a *miracle*. But it was not a miracle of the highest order; for it may be explained by the natural powers of angels, which surpass those of man.

To § 45.

118. I objected, that an *attraction*, properly so called, or in the *scholastic* sense, would be an operation at a distance, without any *means* intervening. The author answers here, that an *attraction* without any *means* intervening, would be indeed a contradiction. Very well! But then what does he mean, when he will have the sun to attract the globe of the earth through an empty space? Is it God himself that performs it? But this would be a *miracle*, if ever there was any. This would surely exceed the powers of creatures.

119. Or, are perhaps some immaterial substances, or some spiritual rays, or some accident without a substance, or some kind of *species intentionalis*, or some other *I know not what*, the *means* by which this is pretended to be performed? Of which sort of things, the author seems to have still a good stock in his head, without explaining himself sufficiently.

120. *That means* of communication (says he) is invisible, intangible, not mechanical. He might as well have added, inexplicable, unintelligible, precarious, groundless, and unexampled.

121. But it is *regular*, (says the author), it is *constant*, and consequently *natural*. I answer; it cannot be regular, without being reasonable; nor natural, unless it can be explained by the natures of creatures.

122. If the *means*, which causes an *attraction* properly so called, be constant, and at the same time inexplicable by the powers of creatures, and yet be true; it must be a perpetual *miracle:* and if

it is not miraculous, it is false. 'Tis a chimerical thing, a scholastic *occult quality.*

123. The case would be the same, as in a body going round without receding in the tangent, though nothing that can be explained, hindered it from receding. Which is an instance I have already alleged; and the author has not thought fit to answer it, because it shows too clearly the difference between what is truly *natural* on the one side, and a *chimerical occult quality* of the schools on the other.

To § 46.

124. All the natural forces of *bodies*, are subject to *mechanical laws;* and all the natural powers of *spirits*, are subject to *moral laws.* The former follow the order of efficient causes; and the latter follow the order of final causes. The former operate without liberty, like a watch; the latter operate with liberty, though they exactly agree with that machine, which another cause, free and superior, has adapted to them beforehand. I have already spoken of this, *above*, *No.* 92.

125. I shall conclude with what the author objected against me at the beginning of this fourth reply: to which I have already given an answer above (*Number* 18, 19, 20). But I deferred speaking more fully upon that head, to the conclusion of this paper. He pretended, that I have been guilty of a *petitio principii.* But, of *what* principle, I beseech you? Would to God, less clear principles had never been laid down. The principle in question, is the principle of the *want of a sufficient reason;* in order to any thing's existing, in order to any event's happening, in order to any truth's taking place. Is this a principle, that wants to be *proved?* The author granted it, or pretended to grant it, *Number* 2, *of his third paper;* possibly, because the denial of it would have appeared too unreasonable. But either he has done it only in words, or he contradicts himself, or retracts his concession.

126. I dare say, that without this great principle, one cannot prove the existence of God, nor account for many other important truths.

127. Has not everybody made use of this principle, upon a thousand occasions? 'Tis true, it has been neglected, out of carelessness, on many occasions: but that neglect has been the true cause of *chimeras;* such as are (for instance), an absolute real *time* or

space, a *vacuum*, *atoms*, *attraction* in the scholastic sense, a *physical influence of the soul over the body*, and a thousand other *fictions*, either derived from erroneous opinions of the ancients, or lately invented by modern philosophers.

128. Was it not upon account of *Epicurus's* violating this great principle, that the ancients derided his groundless *declination* of atoms? And I dare say, the scholastic *attraction*, revived in our days, and no less derided about thirty years ago, is not at all more reasonable.

129. I have often defied people to allege an instance against that great principle, to bring any one uncontested example wherein it fails. But they have never done it, nor ever will. 'Tis certain, there is an infinite number of instances, wherein it succeeds, [or rather it succeeds] in all the known cases in which it has been made use of. From whence one may reasonably judge, that it will succeed also in unknown cases, or in such cases as can only by its means become known: according to the method of experimental philosophy, which proceeds *a posteriori*; though the principle were not perhaps otherwise justified by bare reason, or *a priori*.

130. To deny this great principle, is likewise to do as *Epicurus* did; who was reduced to deny that other great principle, *viz.* the *principle of contradiction*; which is, that every intelligible enunciation must be either true, or false. *Chrysippus* undertook to prove that principle against *Epicurus*; but I think I need not imitate him. I have already said, what is sufficient to justify mine: and I might say something more upon it; but perhaps it would be too abstruse for this present dispute. And, I believe, reasonable and impartial men will grant me, that having forced an adversary to deny that principle, is reducing him *ad absurdum*.

XXXVI.

Extracts from the New Essays on the Understanding. 1704.

[From the French.]

Preface.

The *Essay on the Understanding*, by an illustrious Englishman, being one of the most beautiful and esteemed works of the time, I have resolved to make Remarks on it, because, having sufficiently meditated for a long time on the same subject and upon most of the matters which are therein touched upon, I have thought that it would be a good opportunity to put forth something under the title of *New Essays on the Understanding*, and to obtain a favorable reception for my thoughts by putting them in such good company. I have thought also that I should be able to profit by the work of another, not only to lessen my own (since in fact it is less difficult to follow the thread of a good author than to labor entirely *de novo*), but also to add something to what he has given us, which is always easier than to begin; for I think I have cleared up some difficulties which he had left in their entirety. Thus his reputation is advantageous to me; besides being inclined to do justice, and far from wishing to lessen the esteem in which that work is held, I would increase it, if my approval was of any weight. It is true that I often differ from him, but far from denying the merit of celebrated writers, we bear witness to it, by making known in what and why we separate ourselves from their opinion, when we think it necessary to prevent their authority from prevailing over reason on certain points of importance; besides by satisfying such excellent men, we make truth more acceptable, and it must be supposed that it is principally for truth that they labor.

In fact, although the author of the *Essay* says a thousand fine things of which I approve, our systems differ very much. His has more relation to Aristotle, and mine to Plato, although we both diverge in many things from the doctrines of these two ancients. He is more popular, and I am forced at times to be a little more *acromatic* and more abstract, which is not an advantage to me, especially when I write in a living language. I think nevertheless that by

making two persons speak, one of whom expounds the views taken from the *Essay* of the author and the other joins thereto my observations, the parallel will be more to the liking of the reader than wholly dry remarks the reading of which would be constantly interrupted by the necessity of referring to his book to understand mine. It will nevertheless be well to compare now and then our writings and not to judge of his views except by his own work, although I have ordinarily preserved its expression. It is true that the subjection which the discourse of another, the thread of which must be followed, gives in making Remarks, has prevented me from thinking to secure the embellishments of which the dialogue is susceptible: but I hope that the matter will make up for the defect of style.

Our differences are on subjects of some importance. The question is to know whether the soul in itself is entirely void like the tablet on which nothing has yet been written (*tabula rasa*) according to Aristotle and the author of the *Essay*, and whether all that is traced thereon comes solely from the senses and from experience, or whether the soul contains originally the principles of several notions and doctrines which external objects merely awaken on occasions, as I believe with Plato and even with the schoolmen and with all those who take with this meaning the passage of St. Paul (Romans, 2, 15) where he remarks that the law of God is written in the heart. The Stoics called these principles *prolepses*, that is to say, fundamental assumptions, or what is taken for granted in advance. The mathematicians call them *common notions* (κοιναὶ ἔννοιαι). Modern philosophers give them other beautiful names, and Julius Scaliger in particular named them *semina æternitatis*, also *zopyra*, as meaning living fires, luminous rays, concealed within us, but which the encounter of the senses makes appear like the sparks which the blow makes spring from the steel. And it is not without reason that these glitterings are believed to indicate something divine and eternal which appears especially in necessary truths. Whence there arises another question, whether all truths depend on experience, that is to say, on induction and examples, or whether there are some which have still another basis. For if some events can be foreseen before any proof which may have been made of them, it is manifest that we contribute something on our part thereto. The senses although necessary for all our actual

knowledge are not sufficient to give it all to us, since the senses never give anything except examples, that is to say, particular or individual truths. Now all the examples of whatever number they be, which confirm a general truth, do not suffice to establish the universal necessity of this same truth, for it does not follow that what has happened will happen just so. For example, the Greeks and Romans and all other peoples of the earth known to the ancients, have always noticed that before the expiration of twenty-four hours day changes into night and the night into day. But we would be deceived if we believed that the same law holds good everywhere else, for since then the contrary has been experienced in the region of Nova Zembla. And he would still deceive himself who believed that in our climates at least it is a necessary and eternal truth which will last always, since we must think that the earth and the sun themselves do not exist necessarily, and that there will perhaps be a time when that beautiful star will no longer be, at least in its present form, nor all its system. Whence it would seem that necessary truths such as are found in the pure mathematics and especially in arithmetic and in geometry, ought to have principles the proof of which does not depend on examples, nor, consequently, on the testimony of the senses, although without the senses we would never take it into our heads to think of them. This ought to be well recognized, and this is what Euclid has so well understood that he often demonstrates by the reason that which is sufficiently seen through experience and by sensible images. Logic also, together with metaphysics and ethics, one of which forms theology and the other jurisprudence, both natural, are full of such truths, and consequently their proof can only come from internal principles which are called innate. It is true that we must not imagine that these eternal laws of the reason can be read in the soul as in an open book, as the edict of the pretor is read upon his *album* without difficulty and without search; but it is enough that they can be discovered in us by force of attention, for which occasions are furnished by the senses, and the success of experiences serves also as confirmation to the reason, very much as proofs serve in arithmetic for better avoiding error of reckoning when the reasoning is long. It is also in this that the knowledge of men and that of the brutes differ: the brutes are purely empirics and only guide themselves by examples, for they never, as far as we can judge,

come to form necessary propositions; whereas men are capable of demonstrative sciences. It is also for this reason that the faculty which brutes have of making *consecutions* is something inferior to the reason which is in man. The consecutions of the brutes are merely like those of simple empirics, who claim that what has happened sometimes will happen also in a case where that which strikes them is similar, without being able to judge whether the same reasons hold good. This is why it is so easy for men to entrap brutes and so easy for simple empirics to make mistakes. This is why persons who have become skilled by age or by experience are not exempt from error when they rely too much upon their past experience, as has happened to many in civil and military affairs; because they do not sufficiently consider that the world changes and that men become more skilled by finding a thousand new dexterities, whereas deers and hares of the present day do not become more cunning than those of past time. The consecutions of the brutes are only a shadow of reasoning, that is to say, they are but connections of the imagination and passages from one image to another, because in a new juncture which appears similar to the preceding they expect anew what they found conjoined with it before, as if things were linked together in fact because their images are in the memory. It is true that even reason counsels us to expect ordinarily to see that happen in the future which is conformed to a long past experience, but this is not for this reason a necessary and infallible truth, and success may cease when we expect it least, if the reasons which have sustained it change. This is why the wisest do not rely upon it so much that they do not try to discover something of the reason (if it is possible) of this fact, in order to judge when it will be necessary to make exceptions. For reason is alone capable of establishing sure rules, and of supplying what is lacking to those which were not sure by inserting their exceptions; and of finding, finally, certain connections in the force of necessary consequences, which often gives the means of foreseeing the event without having need of experiencing the sensible connections of images, to which the brutes are reduced; so that that which justifies the internal principles of necessary truths, distinguishes also man from the brutes.

Perhaps our able author will not differ entirely from my opinion. For after having employed the whole of his first book in rejecting

innate lights, taken in a certain sense, he nevertheless avows at the beginning of the second and in what follows, that the ideas which do not originate in sensation come from reflection. Now reflection is nothing else than attention to what is in us, and the senses do not give us that which we already carry with us. This being so, can it be denied that there is much that is innate in our mind, since we are innate, so to say, in ourselves? and that there is in us ourselves, being, unity, substance, duration, change, action, perception, pleasure, and a thousand other objects of our intellectual ideas? And these objects being immediate to our understanding and always present (although they cannot be always perceived on account of our distractions and wants), why be astonished that we say that these ideas, with all which depends on them, are innate in us? I have made use also of the comparison of a block of marble which has veins, rather than of a block of marble wholly even, or of blank tablets, that is to say, of what is called among philosophers *tabula rasa*. For if the soul resembled these blank tablets, truths would be in us as the figure of Hercules is in marble when the marble is entirely indifferent toward receiving this figure or some other. But if there were veins in the block which should mark out the figure of Hercules rather than other figures, the block would be more determined thereto, and Hercules would be in it as in some sort innate, although it would be necessary to labor in order to discover these veins and to cleanse them by polishing and by cutting away that which prevents them from appearing. It is thus that ideas and truths are innate in us, as inclinations, dispositions, habits, or natural capacities, and not as actions; although these capacities are always accompanied by some actions, often insensible, which correspond to them.

It seems that our able author claims that there is nothing *virtual* in us and nothing even of which we are not always actually conscious, but he cannot take this strictly, otherwise his opinion would be too paradoxical; since, moreover, acquired habits and the stores of our memory are not always consciously perceived and do not even come always to our aid at need, although we often easily bring them back to the mind on some slight occasion which makes us remember them, just as we need but the beginning of a song to remember it. He modifies also his assertion in other places, by saying that there is nothing in us of which we have not been at

least formerly conscious. But in addition to the fact that no one can be sure by reason alone how far our past *apperceptions* which we may have forgotten may have gone, especially according to the reminiscence of the Platonists, which, fabulous as it is, has nothing in it incompatible at least in part with the bare reason; in addition to this, I say, why is it necessary that all be acquired by us through the perceptions of external things, and that nothing can be unearthed in ourselves? Is our soul then such a blank that, besides the images imprinted from without, it is nothing? This is not an opinion (I am sure) which our judicious author can approve. And where are there found tablets which are not something varied in themselves? For we never see a plain perfectly even and uniform. Why then could we not furnish also to ourselves something of thought from our own depths, if we should dig therein? Thus I am led to believe that at bottom his opinion on this point is not different from mine or rather from the common opinion, inasmuch as he recognized two sources of our knowledge, the Senses and Reflection.

I do not know whether it will be as easy to bring him in accord with us and with the Cartesians, when he maintains that the mind does not always think and particularly that it is without perception when we sleep without dreaming. And he objects that, since bodies may be without movement, souls may also well be without thought. But here I reply a little differently than is wont to be done, for I maintain that naturally a substance cannot be without action, and even that there is never a body without movement. Experience already favors me, and one has only to consult the book of the illustrious Mr. Boyle against absolute repose, to be persuaded of it; but I believe that reason also favors it and it is one of the proofs which I have for destroying atoms.

Furthermore there are a thousand indications which lead us to think that there are constantly numberless *perceptions* in us, but without apperception and without reflection; that is to say, changes in the soul itself of which we are not conscious because the impressions are either too slight or in too great a number or too even, so that they have nothing sufficient to distinguish them one from the other, but joined to others, they do not fail to produce their effect and to make themselves felt at least confusedly in the mass. Thus it is that custom causes us not to take notice of

the motion of a mill or of a waterfall when we have lived near it for some time. It is not that the motion does not always strike our organs, and that something does not enter the soul which answers thereto, on account of the harmony of the soul and the body; but these impressions which are in the soul and in body, being destitute of the charms of novelty, are not strong enough to attract our attention and our memory, attached as they are to objects more engrossing. For all attention requires memory, and often when we are not admonished, so to speak, and advised to attend to some of our own present perceptions, we let them pass without reflection and even without being noticed; but if some one calls our attention to them immediately afterwards and makes us notice, for example, some noise which was just heard, we remember it and are conscious of having had at the time some feeling of it. Thus it was with the perceptions of which we were not immediately conscious, the consciousness only coming in this case from the warning after some interval small though it may be. And to judge still better of the minute perceptions which we are unable to distinguish in the crowd, I am accustomed to make use of the example of the roar or noise of the sea which strikes one when on the shore. To understand this noise as it is made it would be necessary to hear the parts which compose the whole, that is to say, the noise of each wave, although each of these little noises only makes itself known in the confused collection of all the others together, that is to say, in the roar itself, and would not be noticed if the wave which makes it was alone. For it must be that we are affected a little by the motion of this wave and that we have some perception of each of these noises however small; otherwise we would not have that of a hundred thousand waves, since a hundred thousand nothings cannot make something. One never sleeps so profoundly but that he has some feeble and confused feeling, and he would never be awakened by the greatest noise in the world if he did not have some perception of its small beginning, just as one would never break a rope by the greatest effort in the world if it was not stretched and lengthened a little by smaller efforts, although the little extension which they produce does not appear.

These minute perceptions are then of greater efficacy by their consequences than is thought. It is they which form I know not

what, these tastes, these images of the sensible qualities, clear in the mass but confused in the parts, these impressions which surrounding bodies make upon us, which embrace the infinite, this connection which each being has with all the rest of the universe. It may even be said that in consequence of these minute perceptions the present is big with the future and loaded with the past, that all things conspire (*σύμπνοια πάντα*, as Hippocrates said); and that in the least of substances eyes as piercing as those of God could read the whole course of the things in the universe. *Quae sint, quae fuerint, quae mox futura trahantur.* These insensible perceptions indicate also and constitute the same individual, who is characterized by the traces or expressions which they preserve of the preceding states of this individual, in making the connection with his present state; and these can be known by a superior mind, even if this individual himself should not be aware of them, that is to say, when the express recollection of them will no longer be in him. But they (these perceptions, I say) furnish the means of finding again this recollection at need by the periodic developments which may happen some day. It is for this reason that death can be but a sleep, and cannot indeed continue, the perceptions merely ceasing to be sufficiently distinguished and being, in animals, reduced to a state of confusion which suspends consciousness, but which could not last always; not to speak here of man who must have in this respect great privileges in order to preserve his personality.

It is also through the insensible perceptions that the admirable pre-established harmony of the soul and the body, and indeed of all monads or simple substances, is to be explained; which supplies the place of the unmaintainable influence of the one upon the others, and which in the judgment of the author of the finest of Dictionaries exalts the greatness of the divine perfections above what has ever been conceived. After this I would add little if I should say that it is these minute perceptions which *determine* us in many a juncture without it being thought of, and which deceive the vulgar by the appearance of an *indifference of equilibrium*, as if we were entirely indifferent to turning (for example) to the right or to the left. It is not necessary also that I notice here, as I have done in the book itself, that they cause that *uneasiness* which I show consists in something which does not differ from pain except

as the small from the great, and which nevertheless often constitutes our desire and even our pleasure, in giving to it a salt which stimulates. It is also the inconceivable parts of our sensible perceptions which produce a relation between the perceptions of colors, of heat and of other sensible qualities and between the motions in bodies which correspond to them, whereas the Cartesians with our author, thoroughly penetrating as he is, conceive the perceptions which we have of these qualities as arbitrary, that is to say, as if God had given them to the soul according to his good pleasure without having regard to any essential relation between these perceptions and their objects: an opinion which surprises me and which appears to me little worthy of the Author of things who does nothing without harmony and without reason.

In a word, these *insensible perceptions* are of as great use in pneumatics as the insensible corpuscles are in physics, and it is equally as unreasonable to reject the one as the other under the pretext that they are beyond the reach of our senses. Nothing is done all at once, and it is one of my great maxims, and one of the most verified, that *nature never makes leaps:* this is what I called the *Law of continuity*, when I spoke of it in the first *Nouvelles de la Republique des Lettres*, and the use of this law is very considerable in physics. It teaches that we pass always from the small to the great, and *vice versa*, through the medium, in degrees as in parts, and that motion never arises immediately from repose nor is reduced to it except by a smaller motion, just as one never completes running any line or length before having completed a shorter line; although hitherto those who have laid down the laws of motion have not observed this law, believing that a body can receive in an instant a motion contrary to the preceding. And all this leads us to conclude rightly that the *noticeable perceptions* also come by degrees from these which are too minute to be noticed. To think otherwise is to little understand the immense subtilty of things which always and everywhere embraces an actual infinite.

I have also noticed that in virtue of insensible variations, two individual things cannot be perfectly alike, and that they must always differ more than *numero;* which destroys the blank tablets of the soul, a soul without thought, a substance without action, a void in space, atoms and even particles not actually divided in matter, absolute rest, entire uniformity in one part of time, of space or

of matter, perfect globes of the second element, born of perfect and original cubes, and a thousand other fictions of the philosophers which come from their incomplete notions, and which the nature of things does not permit, and which our ignorance and the little attention we give to the insensible, let pass, but which can not be tolerated, unless they are limited to abstractions of the mind which protests that it does not deny what it puts aside and what it thinks ought not enter into any present consideration. Otherwise if it is rightly understood, namely, that things of which we are not conscious, are not in the soul nor in the body, we should be lacking in philosophy as in politics, in neglecting τὸ μικρὸν, insensible progress; whereas an abstraction is not an error, provided that we know what it is that we feign in it. Just as mathematicians employ it when they speak of perfect lines which they propose to us, of uniform motions and of other regulated effects, although *matter* (that is to say, the medley of the effects of the surrounding infinite) makes always some exception. It is in order to distinguish the considerations and to reduce, as far as is possible, the effects to reasons and to foresee some of their consequences, that we proceed thus: for the more attentive we are to neglect no consideration which we are able to regulate, the more practice corresponds to theory. But it pertains only to the Supreme Reason, which nothing escapes, to comprehend distinctly all the infinite and to see all the reasons and all the consequences. All that we can do as regards infinites is to know them confusedly and to know at least distinctly that they are thus; otherwise we judge very wrongly of the beauty and grandeur of the universe; so also we could not have a sound physics which should explain the nature of bodies in general, and still less a sound pneumatics which should comprise the knowledge of God, of souls and of simple substances in general.

This knowledge of insensible perceptions serves also to explain why and how two souls, human or otherwise, of the same kind, never come from the hands of the Creator perfectly alike, and each always has its original relation to the points of view which it will have in the universe. But this it is which already follows from what I have remarked of two individuals, namely, that their *difference* is always *more than numerical*. There is still another point of importance, on which I am obliged to differ not only from the opinions of our author but also from those of the greater part of

modern philosophers; this is, that I believe with most of the ancients that all genii, all souls, all simple created substances are always joined to a body and that there never are souls entirely separated. I have *à priori* reasons for this; but this advantage is also found in the doctrine, that it resolves all the philosophical difficulties as to the condition of souls, as to their perpetual conservation, as to their immortality and as to their action. The difference of one of their states from another never being and never having been anything but that of more sensible to less sensible, of more perfect to less perfect, or *vice versa*, it renders their past or future state as explicable as that of the present. One feels sufficiently, however little reflection one makes, that this is rational, and that a leap from one state to another infinitely different could not be natural. I am astonished that by quitting the natural without reason, the schoolmen have been willing to plunge themselves purposely into very great difficulties and to furnish matter for apparent triumphs of the strong-minded, all of whose reasons fall at a single blow by this explanation of things, where there is no more difficulty in conceiving the conservation of souls (or rather according to me of the animal) than there is in conceiving the change of the caterpillar into the butterfly, and the conservation of thought in sleep, to which Jesus Christ has divinely well compared death. Also I have already said that a sleep could not last always, and it will last least or almost not at all to rational souls who are always destined to preserve the personality which has been given them in the City of God, and consequently remembrance: and this in order to be more susceptible to chastisements and recompenses. And I add also that in general no derangement of the visible organs is able to throw things into entire confusion in the animal or to destroy all the organs and to deprive the soul of all its organic body and the ineffaceable remains of all preceding traces. But the ease with which the ancient doctrine has been abandoned of subtile bodies united to the angels (which was confounded with the corporality of the angels themselves), and the introduction of pretended separate intelligences in creatures (to which those who make the heavens of Aristotle revolve have contributed much), and finally the poorly understood opinion into which we have fallen that the souls of brutes could not be preserved without falling into metempsychosis and without conducting them from body to body, and the embar-

rassment in which men have been placed by not knowing what to do with them, have caused us, in my opinion, to neglect the natural way of explaining the conservation of the soul. This has done great injury to natural religion and has made many believe that our immortality was only a miraculous grace of God, of which also our celebrated author speaks with some doubt, as I shall presently remark. But it were desirable that all who are of this opinion had spoken as wisely and with as good faith as he, for it is to be feared that many who speak of immortality through grace do it but to save appearances, and approximate at heart those Averroists and some bad Quietists who picture to themselves an absorption and the reunion of the soul with the ocean of divinity; a notion the impossibility of which perhaps my system alone makes evident.

It seems also that we differ further as regards matter, in that the author thinks a vacuum is here necessary for motion because he thinks that the minute parts of matter are rigid. And I acknowledge that if matter were composed of such parts motion in a *plenum* would be impossible, just as if a room were full of a quantity of small pebbles without there being the least vacant space. But this supposition, for which there appears also no reason, is not admissible, although this able author goes to the point of believing that rigidity or cohesion of minute parts constitutes the essence of body. It is necessary rather to conceive space as full of an originally fluid matter, susceptible of all the divisions and even actually subject to divisions and subdivisions *ad infinitum*, but nevertheless with this difference that it is divisible and divided unequally in different places on account of the motions which already more or less concur there. This it is which causes it to have everywhere a degree of rigidity as well as of fluidity, and which causes no body to be hard or fluid to the highest degree, that is to say, no atom to be found of an insurmountable hardness nor any mass entirely indifferent to division. The order also of nature and particularly the law of continuity destroy both equally.

I have shown also that *cohesion*, which could not itself be the effect of impulse or of motion, would cause a *traction* taken strictly. For if there were a body originally inflexible, for example, an Epicurean atom which should have a part projecting in the form of a hook (since we can conceive atoms of all sorts of figure), this hook pushed would carry with it the rest of the atom, that is to say,

the part which is not pushed and which does not fall in the line of impulsion. Nevertheless our able author is himself opposed to these philosophical tractions, such as were attributed formerly to the abhorrence of a vacuum, and he is reduced to *impulse*, maintaining with the moderns that one part of matter operates immediately upon another only by pushing it by contact. In which I think they are right, since otherwise there is nothing intelligible in the operation.

It is however necessary not to conceal the fact that I have noticed a sort of retraction by our excellent author on this subject; whose modest sincerity in this respect I cannot refrain from praising as much as I have admired his penetrating genius on other occasions. It is in the reply to the second letter of the late Bishop of Worcester, printed in 1699, p. 408, where to justify the opinion which he had maintained in opposition to that learned prelate, namely, that matter might think, he says among other things: *I admit that I have said* (book 2 of the *Essay on the Understanding*, chap. 8, § 11) *that body acts by impulse and not otherwise. This also was my opinion when I wrote it, and still at present I cannot conceive in it another manner of acting. But since then I have been convinced by the incomparable book of the judicious Mr. Newton, that there is too much presumption in wishing to limit the power of God by our limited conceptions. The gravitation of matter towards matter, by ways which are inconceivable to me, is not only a demonstration that God can, when it seems good to him, put in bodies powers and ways of acting which transcend that which can be derived from our idea of body or explained by what we know of matter; but it is further an incontestable instance that he has really done so. I shall therefore take care that in the next edition of my book this passage be corrected.* I find that in the French version of this book made undoubtedly according to the latest editions it has been put thus in this § 11: *It is evident*, at least so far as we are able to conceive it, *that it is by impulse and not otherwise that bodies act on each other, for it is impossible for us to understand that body can act upon what it does not touch, which is as much as to imagine that it can act where it is not.*

I cannot but praise that modest piety of our celebrated author, which recognizes that God may do above what we are able to com-

prehend, and that thus there may be inconceivable mysteries in the articles of faith; but I should not like to be obliged to resort to miracle in the ordinary course of nature, and to admit powers and operations absolutely inexplicable. Otherwise too much license will be given to poor philosophers, under cover of what God can do, and by admitting these *centripetal virtues* or these *immediate attractions* from afar, without its being possible to render them intelligible, I see nothing to hinder our scholastics from saying that everything is done simply by their faculties and from maintaining their intentional species which go from objects to us and find means of entering even into our souls. If this is so, *omnia jam fient, fieri quae posse negabam.* So that it seems to me that our author, quite judicious as he is, goes here a little too much from one extremity to the other. He is squeamish concerning the operations of *souls*, when the question merely is to admit that which is not *sensible*, and now, behold, he gives *to bodies* that which is not even *intelligible*, granting them powers and actions which surpass all that in my opinion a created spirit could do and understand, for he grants them attraction, and that even at great distances, without limiting himself to any sphere of activity, and this to maintain an opinion which does not appear less inexplicable; namely, the possibility of the thought of matter in the natural order.

The question which he, with the celebrated prelate who attacked him, agitates, is *whether matter can think;* and as this is an important point, even for the present work, I cannot exempt myself from entering upon it a little and from taking notice of their controversy. I will present the substance of it on this subject and will take the liberty of saying what I think of it. The late Bishop of Worcester, apprehending (but in my opinion without good reason) that our author's doctrine of ideas was liable to certain abuses prejudicial to the Christian faith, undertook to examine some passages of it in his *Vindication of the Doctrine of the Trinity;* and having done justice to this excellent writer by recognizing that he regards the existence of spirit as certain as that of body, although one of these substances is as little known as the other, he asks (p. 241 seqq.) how reflection can assure us of the existence of spirit, if God can give to matter the faculty of thinking, according to the opinion of our author, bk. 4, chap. 3, since thus the way of ideas which must serve to discern that which is suitable to the soul or the body would become

useless; whereas he had said, bk. 2 of the *Essay on the Understanding*, ch. 23, §§ 15, 27, 28, that the operations of the soul furnish us the idea of mind, and the understanding with the will renders this idea as intelligible to us as the nature of body is rendered by solidity and impulse. This is how our author replies to it in the first letter (p. 65 seqq.): *I believe that I have proved that there is a spiritual substance in us, for we experience in ourselves thought; now this action or this mode could not be the object of the idea of a thing subsisting of itself, and consequently this mode needs a support or subject of inhesion, and the idea of this support forms what we call substance.* . . For since the general idea of substance is everywhere the same, *it follows that the modification, which is called thought or power of thinking, being joined to it, there results a mind without there being need of considering what other modification it has in addition; that is whether it has solidity or not. And on the other hand, the substance which has the modification called solidity will be matter, whether thought be joined to it or not. But if by a spiritual substance you understand an immaterial substance, I confess that I have not proved that there is one in us, and that it cannot be proved demonstratively on my principles. Although what I have said on the systems of matter* (bk. 4, ch. 10, § 16), *in demonstrating that God is immaterial, renders it extremely probable that the substance which thinks in us is immaterial.* . . . . *However I have shown* (adds the author, p. 68) *that the great ends of religion and of morals are assured by the immortality of the soul, without its being necessary to suppose its immateriality.*

The learned Bishop in his reply to this letter, in order to show that our author was of another opinion when he wrote his second book of the *Essay*, quotes, p. 51, the passage (taken from the same book, ch. 23, § 15) where it is said, *that by the simple ideas which we have deduced from the operations of our mind, we can form the complex idea of a mind. And that putting together the ideas of thought, of perception, of liberty and of power of moving our body, we have as clear a notion of immaterial substances as of material.* He quotes still other passages to show that the author opposed mind to body. And he says (p. 54) that the ends of religion and of morals are the better assured by proving that the soul is immortal by its nature, that is, immaterial. He quotes again (p. 70) this passage, *that all the ideas which we have of particular*

and distinct kinds of substances are nothing but different combinations of simple ideas ; and that thus the author believed that the idea of thinking and of willing gives another substance different from that which the idea of solidity and of impulse gives, and that (§ 17) he observes that these ideas constitute the body as opposed to mind.

The Bishop of Worcester might add that from the fact that the *general idea* of substance is in the body and in the mind, it does not follow that their *differences* are *modifications* of one and the same thing, as our author has just said in the passage which I have adduced from his first letter. It is necessary to distinguish carefully between modifications and attributes. The faculties of having perception and of acting, extension, solidity, are attributes or perpetual and principal predicates ; but thought, impetuosity, figures, movements are modifications of these attributes. Furthermore, we must distinguish between *physical* (or rather real) genus, and *logical* or ideal genus. The things which are of the same physical genus, or which are *homogeneous*, are of the same *matter*, so to speak, and may often be changed the one into the other by the change of the modification, as circles and squares. But two *heterogeneous* things may have a common logical genus, and then their *differences* are not simply accidental modifications of the same subject or of the same metaphysical or physical matter. Thus time and space are very heterogeneous things, and we should do wrong to imagine I know not what real common subject which had but the contained quantity in general and the modifications of which should make time or space appear.

Perhaps some one will mock at these distinctions of philosophers of two genera, the one merely logical, the other real ; and of two matters, the one physical which is that of bodies, the other only metaphysical or general ; as if some one said that two parts of space are of the same matter or that two hours are also of the same matter among themselves. Nevertheless these distinctions are not merely of terms, but of things themselves, and seem to come in here very appropriately, where their confusion has given rise to a false consequence. These two genera have a common notion, and that of the real genus is common to the two matters, so that their genealogy will be as follows :

Genus: { *Logical* merely, varied by simple *differences*.
{ *Real*, the *differences* of which are *modifications*, that is to say, *matter*. { *Metaphysical* only, where there is homogeneity. *Physical*, where there is a solid homogeneous mass.

I have not seen the second letter from the author to the Bishop, but the reply which this prelate makes to it hardly touches on the point regarding the thinking of matter. But the *reply of our author* to this second answer, returns to it. *God* (he says very nearly in these words, p. 397), *adds to the essence of matter the qualities and perfections which he pleases, simple movement in some parts, but in plants, vegetation, and in animals, feeling. Those who agree up to this point, cry out as soon as one more step is taken, saying that God can give to matter thought, reason, will, as if this destroyed the essence of matter. But to prove it, they allege that thought or reason is not included in the essence of matter, a point of no consequence, since movement and life are not included in it either. They assert also that we cannot conceive that matter thinks; but our conception is not the measure of the power of God.* After this he cites the example of the attraction of matter, p. 99, but especially p. 408, where he speaks of the gravitation of matter toward matter attributed to Mr. Newton (in the terms which I have quoted above), confessing that we could never conceive the manner of it. This is in reality to return to the occult or, what is more, inexplicable qualities. He adds, p. 401, that nothing is more fit to favor the sceptics than to deny what we do not understand; and, p. 402, that we do not conceive even how the soul thinks. He will have it, p. 403, that the two substances, material and immaterial, capable of being conceived in their bare essence without any activity, it depends on God to give to each the power of thinking. And he wishes to take advantage of the avowal of his opponent who had granted feeling to brutes, but who would not grant them any immaterial substance. It is claimed that liberty and consciousness (p. 408), and the power of making abstractions (p. 409), can be given to matter, not as matter but as enriched by a divine power. Finally he adduces the remark

(p. 434) of a traveller as important and as judicious as M. de la Loubere, that the peasants of the east know the immortality of the soul without being able to comprehend its immateriality.

On all this I will remark, before coming to the explanation of my opinion, that it is certain that matter is as little capable of mechanically producing feeling as of producing reason, as our author agrees; that in truth I acknowledge that it is not right to deny what we do not understand, but I add that we are right in denying (at least in the natural order) what is absolutely neither intelligible nor explicable. I maintain also that substances (material or immaterial) cannot be conceived in their bare essence without any activity; that activity belongs to the essence of substance in general; that, finally, the conception of creatures is not the measure of the power of God, but that their conceptivity or force of conceiving is the measure of the power of nature; everything which is conformed to the natural order being capable of being conceived or comprehended by some creature.

Those who would conceive my system will think that I could not conform myself in everything to one or the other of these two excellent authors, whose controversy, however, is highly instructive. But to explain myself distinctly, before all else it is necessary to consider that the modifications which may belong naturally or without miracle to a subject, must come into it from the limitations or variations of a real genus or of a constant and absolute original nature. For it is thus that philosophers distinguish the modes of an absolute being from that being itself; as it is known that size, figure and movement are manifestly limitations and variations of corporeal nature. For it is clear in what way a limited extension gives figures, and that the change which is made in it is nothing but motion. And every time that we find some quality in a subject, we must believe that if we understood the nature of this subject and of this quality, we should conceive how this quality can result therefrom. Thus, in the order of nature (miracles set aside), it is not optional with God to give to substances indifferently such or such qualities, and he will never give them any but those which shall be natural to them; that is, which can be derived from their nature as explicable modifications. Thus it may be asserted that matter will not naturally have the above mentioned attraction, and will not move of itself in a curved line,

because it is not possible to conceive how this takes place there; that is, to explain it mechanically; whereas that which is natural, must be able to become distinctly conceivable if we were admitted into the secrets of things. This distinction between what is natural and explicable and what is inexplicable and miraculous, removes all the difficulties; and by rejecting it, we should maintain something worse than the occult qualities; and in this we would renounce philosophy and reason, by opening retreats for ignorance and idleness, through a dead system which admits not only that there are qualities which we do not understand, of which there are only too many, but also that there are some which the greatest mind, if God gave him all the opening possible, could not comprehend; that is, which would be either miraculous or without rhyme and reason; and also that God should make miracles ordinarily, would be without rhyme and reason, so that this useless hypothesis would destroy equally our philosophy which seeks reasons, and divine wisdom which furnishes them.

Now as to thought, it is certain, and the author recognizes it more than once, that it could not be an intelligible modification of matter or one which could be comprehended and explained; that is to say, that the feeling or thinking being is not a mechanical thing like a clock or a mill, such that we might conceive sizes, figures and movements, the mechanical conjunction of which might produce something thinking and even feeling in a mass in which there was nothing such, which should cease also in the same way by the irregularity of this mechanism. It is hence not natural to matter to feel and to think; and this can only take place within it in two ways, one of which will be that God should join to it a substance, to which it is natural to think, and the other that God should put thought in it by miracle. In this, then, I am entirely of the opinion of the Cartesians, except that I extend it even to brutes and that I believe that they have feeling and immaterial souls (properly speaking) and are as imperishable as the atoms of Democritus or Gassendi; whereas the Cartesians, groundlessly embarassed by the souls of brutes and not knowing what they are to do with them if they are preserved (for want of having bethought themselves of the preservation of the same animal reduced to miniature), have been forced, contrary to all appearances and to the judgment of the human race, to deny even feeling to brutes.

But if some one should say that God at least may add the faculty of thinking to the prepared mechanism, I would reply that if this were done and if God added this faculty to matter without depositing in it at the same time a substance which was the subject of inhesion of this same faculty (as I conceive it), that is to say, without adding to it an immaterial soul, it would be necessary that matter should be miraculously exalted in order to receive a power of which it is not naturally capable; as some scholastics claim that God exalts fire even to the point of giving it the force to burn immediately spirits separated from matter, a thing which would be a miracle, pure and simple. And it is enough that it cannot be maintained that matter thinks without putting thereto an imperishable soul or a miracle, and that thus the immortality of our souls follows from that which is natural, since their extinction could be effected only by a miracle, whether by exalting matter or by annihilating the soul. For we well know that the power of God could render our souls mortal, however immaterial (or immortal by nature alone) they may be, for he can annihilate them.

Now this truth of the immateriality of the soul is undoubtedly of importance. For it is infinitely more advantageous to religion and to morals, especially in the times in which we live (when many people hardly respect revelation alone and miracles), to show that souls are immortal naturally, and that it would be a miracle if they were not, than to maintain that our souls ought naturally to die, but that it is by virtue of a miraculous grace, founded in the promise of God alone, that they do not die. Also for a long time it has been known that those who have wished to destroy natural religion and reduce all to revealed religion, as if reason taught us nothing concerning it, have been regarded with suspicion, and not always without reason. But our author is not of this number; he maintains the demonstration of the existence of God, and he attributes to the immateriality of the soul a *probability* in *the highest degree*, which could pass consequently for a *moral certainty*, so that I imagine that, having as much sincerity as penetration, he could accommodate himself easily to the doctrine which I have just stated and which is fundamental in every rational philosophy; for otherwise I do not see how one can prevent himself from falling back into the *fanatical philosophy*, such as the *Philosophia Mosaica* of Fludd which saves all phenomena by attributing them to

God immediately and by miracle, or into the *barbaric* philosophy, like that of certain philosophers and physicians of the past, which still bore the marks of the barbarity of their century and which is to-day with reason despised, who saved appearances by forging expressly occult qualities or faculties which they imagined to be like little demons or goblins capable of producing unceremoniously that which is demanded, just as if watches marked the hours by a certain horodeictic faculty without having need of wheels, or as if mills crushed grains by a fractive faculty without needing anything resembling mill-stones. As to the difficulty which many people have had in conceiving an immaterial substance, it will easily cease (at least in good part) when they do not demand substances separated from matter; as indeed I do not believe there ever are any naturally among creatures.

Book I.—Of Innate Ideas.

chapter i. [ii in locke.]

Are there Innate Principles in the Mind of Man?

It is necessary that I tell you anew that I am no longer a Cartesian, and that nevertheless I am farther removed than ever from your Gassendi, whose knowledge and merit I elsewhere recognize. I have been impressed by a new system, of which I have read something in the philosophical journals of Paris, of Leipsic, and of Holland, and in the marvellous Dictionary of M. Bayle, article *Rorarius*; and since then I believe I see a new aspect of the interior of things. This system appears to unite Plato with Democritus, Aristotle with Descartes, the scholastics with the moderns, theology and ethics with reason. It seems to take the best from every side and then afterwards to go farther than any one has yet gone. I find in it an intelligible explanation of the union of the soul and body, a thing of which I had before despaired. I find the true principles of things in the Unities of Substance which this system introduces, and in their harmony preëstablished by the primitive substance. I find in it a surprising simplicity and uniformity, so that it may be said that it is everywhere and always the same thing, nearly in the degrees of perfection. I see now what Plato meant

when he took matter for an imperfect and transitory entity, what Aristotle meant by his entelechy; what the promise which Democritus himself made of another life is, with Pliny; just how far the Sceptics were right in inveighing against the senses; how the animals are in reality automata according to Descartes, and how they have, nevertheless, souls and feeling according to the opinion of the human race; how it is necessary to explain rationally those who have lodged life and perception in all things, like Cardan, Campanella, and better than they, the late Countess of Connaway, a Platonist, and our friend, the late M. François Mercure van Helmont (although elsewhere bristling with unintelligible paradoxes), with his friend, the late Mr. Henry More. How the laws of nature (a large part of which were unknown before this system) have their origin in principles superior to matter, and how, nevertheless, everything takes place mechanically in matter; in which respect the spiritualistic authors whom I have just mentioned, had failed with their Archaei and even the Cartesians, in believing that immaterial substances changed if not the force, at least the direction or determination of the motions of bodies, whereas the soul and body perfectly retain their laws, each its own, according to the new system, and yet one obeys the other as far as is necessary. Finally, it is since I have meditated on this system that I have found out how the souls of brutes and their sensations are not at all prejudicial to the immortality of human souls, or, rather, how nothing is more adapted to establish our natural immortality than to conceive that all souls are imperishable (*morte carent animae*), without, however, there being metempsychoses to be feared, since not only souls but also animals remain and will remain living, feeling, acting; it is everywhere as here, and always and everywhere as with us, according to what I have already said to you. Unless it be that the states of animals are more or less perfect and developed, without there ever being need of souls altogether separate, while nevertheless, we always have minds as pure as possible, notwithstanding our organs, which cannot disturb by any influence, the laws of our spontaneity. I find the vacuum and atoms excluded very differently than by the sophism of the Cartesians, founded on the pretended coincidence between the idea of body and of extension. I see all things regulated and adorned beyond anything conceived of up to this time, matter everywhere organic, no sterile, neglected vacuum, nothing

too uniform, everything varied but with order; and what surpasses the imagination, the whole universe in epitome, but with a different aspect in each of its parts and even in each of its unities of substance. In addition to this new analysis of things, I have better understood that of notions or ideas and of truths. I understand what is a true, clear, distinct, adequate idea, if I dare adopt this word. I understand what are primitive truths, and true axioms, the distinction between necessary truths and those of fact, between the reasoning of men and the consecutions of brutes which are a shadow of it. Finally, you will be surprised, sir, to hear all that I have to say to you, and especially to understand how knowledge of the greatness and perfection of God is thereby exalted. For I cannot conceal from you, from whom I have had nothing secret, how much I am imbued now with admiration and (if we may venture to make use of this term) with love for this sovereign source of things and of beauties, having found that those which this system reveals, surpass everything hitherto conceived. You know that I had gone a little too far formerly, and that I began to incline to the side of the Spinozists, who leave only infinite power to God, without recognizing either perfection or wisdom as respects him, and, scorning the search after final causes, derive everything from brute necessity. But these new lights have cured me of this.

§ 1. I have always favored, as I do still, the innate idea of God which M. Descartes maintained, and consequently other innate ideas which cannot come to us from the senses. Now I go still farther in conformity with the new system, and I even believe that all the thoughts and actions of our soul come from its own depths and cannot be given to it by the senses, as you shall see in the sequel. But at present I shall set aside this investigation, and accommodating myself to the received expressions, since in truth they are good and maintainable and since in a sense it may be said that the external senses are in part causes of our thoughts, I shall examine how in my opinion it must be said, even in the common system (speaking of the action of bodies on the soul, as the Copernicans speak with other men of the motion of the sun, and with reason), that there are ideas and principles which do not come to us from the senses, and which we find in us without forming them, although the senses give us occasion to become conscious of them. I imagine that your able author has remarked that under the name

of innate principles one often maintains his prejudices, and wishes to exempt himself from the trouble of discussions, and that this abuse has animated his zeal against this supposition. He has wished to combat the indolence and the superficial manner of thinking of those who, under the specious pretext of innate ideas and truths engraved naturally on the mind, to which we easily give assent, do not concern themselves with seeking and examining the sources, connections and certainty of this knowledge. In this I am altogether of his opinion, and I even see farther. I would that our analysis should not be limited, that definitions of all terms capable thereof should be given, and that all the axioms which are not primitive, should be demonstrated or the means of demonstrating them be given; without distinguishing the opinion which men have thereof, and without caring whether they give their consent thereto or not. This would be more useful than is thought. But it seems that the author has been carried too far on the other side by his zeal, otherwise highly praiseworthy. He has not sufficiently distinguished, in my opinion, the origin of necessary truths whose source is in the understanding, from that of the truths of fact, drawn from the experiences of the senses, and even from the confused perceptions which are in us. You see therefore, sir, that I do not admit what you lay down as fact, that we can acquire all our knowledge without having need of innate impressions. And the sequel will show which of us is right.

§§ 2. 3. 4. I do not base the certainty of innate principles on *universal consent*, for I have already told you that my opinion is that we ought to labor to be able to prove all the axioms which are not primitive. I grant also that a consent very general, but which is not universal, may come from a tradition diffused throughout the human race, as the practice of smoking tobacco has been received by almost all nations in less than a century, although some islanders have been found who, not knowing even fire, were unable to smoke. Thus some able people, even among theologians, but of the party of Arminius, have believed that the knowledge of the Divinity came from a very ancient and general tradition; and I believe indeed, that instruction has confirmed and rectified this knowledge. It appears, however, that nature has aided in reaching it without instruction; the marvels of the universe have made us think of a superior power. A child born deaf and dumb has been seen to

show veneration for the full moon, and nations have been found who seemed not to have learned anything else of other people, fearing invisible powers. I grant that this is not yet the idea of God, such as we have it and as we demand; but this idea itself does not cease to be in the depths of our souls, without being placed there, as we shall see, and the eternal laws of God are in part engraved thereon in a way still more legible, and by a sort of instinct. But they are practical principles of which we shall also have occasion to speak. It must be admitted, however, that the inclination which we have to recognize the idea of God, lies in human nature. And even if the first instruction therein should be attributed to Revelation, the readiness which men have always shown to receive this doctrine comes from the nature of their souls. I conclude that a sufficiently general consent among men is an indication and not a demonstration of an innate principle; but that the exact and decisive proof of these principles consists in showing that their certainty comes only from what is in us. To reply again to what you say against the general approbation given to the two great speculative principles, which are nevertheless the best established, I may say to you that even if they were not known, they would none the less be innate, because they are recognized as soon as heard; but I will add further, that at bottom everyone knows them and makes use at every moment of the principle of contradiction (for example) without examining it distinctly, and there is no barbarian, who, in a matter which he considers serious, would not be shocked at the conduct of a liar who contradicts himself. Thus these maxims are employed without being expressly considered. And it is very much so that we have virtually in the mind the propositions suppressed in enthymemes, which are set aside not only externally, but also in our thought.

§ 5. [*Not on the mind naturally imprinted, because not known to children, idiots, &c.*] If you are so prejudiced as to say that there are truths imprinted on the soul which it does not perceive, I am not surprised that you reject innate knowledge. But I am astonished that it has not occurred to you that we have an infinity of knowledge of which we are not always conscious, not even when we have need of it. It is for memory to retain it and for reminiscence to represent it to us, as it often does, but not always when needed. This is very well called remembrance (*subvenire*), for

reminiscence requires some help. And it must be that in this multiplicity of our knowledge we are determined by something to renew one rather than another, since it is impossible to think distinctly and at once of *all that we know*. In a sense it must be said that all arithmetic and all geometry are innate and are in us virtually, so that they may be found there if we consider attentively and arrange what is already in the mind, without making use of any truth learned by experience or by the tradition of others, as Plato has shown in a dialogue, where he introduces Socrates leading a child to abstract truths by mere questions, without telling him anything. We may therefore invent these sciences in our libraries and even with closed eyes, without learning by sight or even by touch, the truths which we need; although it is true that we would not consider the ideas in question if we had never seen or touched anything.

Since an acquired knowledge may be concealed in the soul by the memory, as you admit, why could not nature have also hidden there some original knowledge? Must everything which is natural to a substance which knows itself, be known there actually in the beginning? Can not and must not this substance (such as our soul), have many properties and modifications, all of which it is impossible to consider at first and altogether? It was the opinion of the Platonists that all our knowledge was reminiscence and that thus the truths which the soul has brought along at the birth of the man and which are called innate, must be the remains of an express anterior knowledge. But this opinion has no foundation. And it is easy to judge that the soul must already have innate knowledge in the preceding state (if preëxistence were a fact), however distant it might be, just as here; it therefore would have to come also from another preceding state, or it would be finally innate or at least concreate, or it would be necessary to resort to the infinite and make souls eternal, in which case this knowledge would be innate in truth, from the fact that it would never have a beginning in the soul; and if someone claimed that each anterior state has had something from another more anterior which it has not left to the succeeding, the reply will be made, that it is manifest that certain evident truths must have been in all these states. And in whatever way it may be taken, it is always clear in all the states of the soul that necessary truths are innate and are proved by what is

internal, it not being possible to establish them by experiences as we establish truths of fact. Why should it be necessary also that we could possess nothing in the soul of which we had never made use? And is to have a thing without making use of it the same thing as to have merely the faculty of acquiring it? If it were so, we should never possess anything except the things which we enjoy; whereas we know that in addition to the faculty and the object, there must often be some disposition in the faculty or in the object or in both, in order that the faculty be exercised upon the object.

If the mind had only the simple capacity of receiving knowledge or passive power for that, as indeterminate as that which the wax has for receiving figures, and a blank tablet for receiving letters, it would not be the source of necessary truths, as I have just shown it to be; for it is incontestable that the senses do not suffice to show their necessity, and that thus the mind has a disposition (as much active as passive) to draw them itself from its depths; although the senses are necessary in order to give it the occasion and attention for this, and to carry it to some rather than to others. You see, therefore, sir, that these people, otherwise very able, who are of a different opinion, seem not to have sufficiently meditated on the consequences of the difference which there is between necessary or eternal truths and the truths of experience, as I have already remarked, and as all our discussion shows. The original proof of the necessary truths comes from the understanding alone, and the other truths come from experiences or from the observations of the senses. Our mind is capable of knowing both, but it is the source of the former; and whatever number of particular experiences we may have of a universal truth, we could not be assured of it forever by induction, without knowing its necessity through the reason.

§ 11. It is the particular relation of the human mind to these truths which renders the exercise of the faculty easy and natural as respects them, and which causes them to be called innate. It is therefore, not a naked faculty which consists in the mere possibility of understanding them; it is a disposition, an aptitude, a preformation, which determines our soul and which brings it about that they may be derived from it. Just as there is a difference between the figures which are given to the stone or marble indifferently, and those which its veins already mark out or are disposed to mark out if the workman profits by them.

The intellectual ideas, which are the source of necessary truths, do not come from the senses; and you recognize that there are ideas which are due to the reflection of the mind when it reflects upon itself. For the rest, it is true that the express knowledge of truths is posterior (*tempore vel natura*) to the express knowledge of ideas; as the nature of truths depends on the nature of ideas, before we expressly form one or the other, and the truths into which the ideas which come from the senses enter, depend on the senses, at least in part. But the ideas which come from the senses are confused, and the truths which depend upon them are confused also, at least in part; whereas the intellectual ideas and the truths which depend on them, are distinct, and neither the one class nor the other has its origin in the senses, although it may be true that we would never think of them without the senses.

§ 18. [*If such an assent be a mark of innate, then, that one and two are equal to three, that sweetness is not bitterness, and a thousand the like, must be innate.*] I do not see how this: *what is the same thing is not different*, can be the origin of the principle of contradiction, and easier; for it seems to me that you give yourself more liberty by advancing that A is not B, than by saying that A is not non-A. And the reason which prevents A from being B, is that B includes non-A. For the rest, the proposition: *the sweet is not the bitter*, is not innate, according to the meaning which we have given to the term innate truth. For the feelings of sweet and of bitter come from the external senses. Thus it is a mixed conclusion (*hybrida conclusio*), where the axiom is applied to a sensible truth. But as for this proposition: *the square is not a circle*, it may be said to be innate, for in considering it, you make a subsumption or application of the principle of contradiction to what the understanding itself furnishes as soon as you are conscious of innate thoughts.

§ 19. [*Such less general propositions known before these universal maxims.*] We build on these general maxims, as we build on majors which are suppressed when we reason by enthymemes; for although very often we do not think distinctly of what we do in reasoning, any more than of what we do in walking and jumping, it is always true that the force of the conclusion consists partly in what is suppressed and could not come from elsewhere, as will be found if you should wish to prove it.

§ 20. [*One and one equal to two, &c., not general nor useful, answered.*] It is true that we begin sooner to perceive particular truths, when we begin by more composite and gross ideas; but this does not prevent the order of nature from beginning with the most simple, and the reason of more particular truths from depending on the more general, of which they are only examples. And when we wish to consider what is in us virtually, and before all *apperception*, we are right in beginning with the most simple. For the general principles enter into our thoughts, of which they form the soul and the connection. They are as necessary to it as the muscles and sinews are for walking, although we do not think of it. The mind leans upon these principles at all times, but it does not so easily come to distinguish them and to represent them to itself distinctly and separately, because that requires great attention to what it does, and most people, little accustomed to meditate, have hardly any. Have not the Chinese, like ourselves, articulate sounds? and yet being attached to another way of writing, they have not yet thought of making an alphabet of these sounds. It is thus that one possesses many things without knowing it.

§ 21. [*These maxims not being known sometimes till proposed, proves them not innate.*] The nature of things and the nature of the mind agree. And since you oppose the consideration of the thing to the apperception of that which is engraved on the mind, this objection itself shows, sir, that those whose side you take, understand by *innate truths* only those which would be approved naturally as by *instinct*, and even without knowing it, unless confusedly. There are some of this nature, and we shall have occasion to speak of them. But that which is called *natural light* supposes a distinct knowledge, and very often the consideration of the nature of things is nothing else than the knowledge of the nature of our mind and of these innate ideas which we do not need to seek outside. Thus I call innate, those truths which need only this consideration in order to be verified. I have already replied § 5, to the objection § 22, which claimed that when it is said that innate ideas are implicitly in the mind, this must mean simply, that it has the faculty of knowing them; for I have shown that in addition to this, it has the faculty of finding them in itself, and the disposition to approve them when it thinks of them as it should.

§ 23. [*The argument of assenting on first hearing, is upon a false supposition of no precedent teaching.*] I would name as

propositions whose ideas are innate, the propositions of arithmetic and geometry, which are all of this nature, and as regards necessary truths, no others could be found.

§ 25. [*These maxims not the first known.*] The apperception of that which is in us, depends upon attention and order. Now, it is not only possible, but it is also proper, that children pay more attention to the ideas of the senses, because the attention is regulated by the need. The result, however, shows in the sequel, that nature has not uselessly given herself the trouble of impressing upon us innate knowledge, since without it there would be no means of arriving at actual knowledge of the truths necessary in the demonstrative sciences, and at the reasons of facts; and we should possess nothing above the brutes.

§ 26. [*And so not innate.*] Not at all, for thoughts are actions; and knowledge or truths, in so far as they are in us, even when we do not think of them, are habits or dispositions; and we know very many things of which we hardly think.

[*It is very difficult to conceive that a truth be in the mind, if the mind has never thought of this truth.*]

It is as if someone said that it is difficult to conceive that there are veins in marble before they are discovered. This objection also seems to approach a little too much the *petitio principii*. All those who admit innate truths without basing them upon the Platonic reminiscence, admit those of which they have not yet thought. Moreover, this reasoning proves too much; for if truths are thoughts, we should be deprived not only of the truths of which we have never thought, but also of those of which we have thought and of which we no longer actually think; and if truths are not thoughts but habits, and aptitudes, natural or acquired, nothing prevents there being some in us of which we have never thought, nor will ever think.

§ 27. [*Not innate, because they appear least where what is innate shows itself clearest.*] I believe that we must reason here very differently. Innate maxims, appear only through the attention which is given them; but these persons [children, idiots, savages], have very little of it, or have it for entirely different things. They think of hardly anything except the needs of the body; and it is reasonable that pure and detached thoughts should be the prize of nobler pains. It is true that children and savages have the mind

less altered by customs, but they also have it exalted by the teaching which gives attention. It would not be very just that the brightest lights should burn better in minds which deserve them less, and which are enveloped in thicker clouds. I would not like one to give too much honor to ignorance and barbarity, when one is as learned and as clever as you are; that would be to depreciate the gifts of God. Some one will say, that the more ignorant one is, the nearer he will approach to the advantage of a block of marble or of a piece of wood, which are infallible and sinless. But unfortunately, it is not in this way that one approaches thereto; and as far as we are capable of knowledge, we sin in neglecting to acquire it, and we shall fail so much the more easily as we are less instructed.

Book II.—Of Ideas.

CHAPTER I.

Of Ideas in general, and whether the soul always thinks.

§ 1. [*Idea is the object of thinking.*] I admit it, provided that you add that it is an immediate internal object, and that this object is an expression of the nature or of the qualities of things. If the idea were the *form* of thought, it would come into existence, and would cease with the actual thoughts which correspond to it; but in being its object it might be anterior and posterior to thoughts. The external sensible objects are but *mediate*, because they cannot act immediately upon the soul. God alone is the *immediate external* object. It might be said that the soul itself is its own immediate *internal* object; but it is so in so far as it contains ideas or what corresponds to things; for the soul is a microcosm in which distinct ideas are a representation of God, and in which confused ideas are a representation of the universe.

§ 2. [*All ideas come from sensation or reflection.*] The *tabula rasa*, of which so much is said, is, in my opinion, a fiction which nature does not admit of, and which has its foundation in the incomplete notions of philosophers, like the vacuum, atoms, and rest, absolute or relative, of two parts of a whole, or like the *materia prima* which is conceived as without form. Uniform things and those which contain no variety, are never anything but abstractions, like time, space, and the other entities of pure mathematics. There

is no body, the parts of which are at rest, and there is no substance which has nothing by which to distinguish it from every other. Human souls differ not only from other souls, but also among themselves, although the difference is not of the nature which is called specific. And according to the demonstrations, which I think I have, everything substantial, whether soul or body, has its relation, which is peculiar to itself, to each of the others, and the one must always differ from the other by *intrinsic characteristics;* not to mention that those who speak so much of this *tabula rasa*, after having taken away from it ideas are not able to say what is left to it, like the scholastic philosophers who leave nothing to their *materia prima.* It may, perhaps, be answered that this *tabula rasa* of the philosophers means that the soul has naturally and originally only bare faculties. But faculties without some act, in a word, the pure powers of the school, are also but fictions unknown to nature, and which are obtained only by abstraction. For where in the world will there ever be found a faculty which confines itself to the mere power, without exercising any act? There is always a particular disposition to action, and to one action rather than to another. And besides the disposition, there is a tendency to action, of which tendencies there is always an infinity at once in each subject; and these tendencies are never without some effect. Experience is, I admit, necessary in order that the soul be determined to such or such thoughts, and in order that it take notice of the ideas which are in us; but by what means can experience and the senses give ideas? Has the soul windows? does it resemble tablets? is it like wax? It is evident that all who think of the soul thus, make it at bottom corporeal. This axiom received among the philosophers, will be opposed to me, that there is nothing in the soul which does not come from the senses. But the soul itself and its affections must be excepted. *Nihil est in intellectu, quod non fuerit in sensu*, excipe: *nisi ipse intellectus.* Now the soul comprises being, substance, unity, identity, cause, perception, reason, and many other notions which the senses cannot give.

In order to avoid a discussion upon what has delayed us too long, I declare to you in advance, sir, that when you say that ideas come to us from one or the other of these causes [sensation or reflection], I understand it of their *actual* perception, for I think that I have shown that they are in us before they are perceived, so far as they have anything distinct about them.

§§ 9 and 10. [*The soul begins to have ideas when it begins to perceive. The soul thinks not always.*] Action is no more connected with the soul than with body; a state without thought in the soul and an absolute repose in body, appear to me equally contrary to nature and without example in the world. A substance once in action will be so always, for all the impressions remain and are merely mixed with other new ones. By striking a body we excite or rather determine an infinity of vortices, as in a liquid, for at bottom every solid has a degree of liquidity, and every liquid a degree of solidity, and there is no means of ever arresting entirely these internal vortices. Now we may believe that if body is never in repose, the soul, which corresponds to it, will never be without perception either.

It is certain that we slumber and sleep, and that God is exempt from this. But it does not follow that while sleeping we are without perception. Rather just the opposite is found to be the case, if it is well considered.

Real powers are never simple possibilities. There is always tendency and action.

I do not say that it is self-evident that the soul always thinks. A little attention and reasoning is needed to discover it. The common people perceive it as little as the pressure of the air or the roundness of the earth.

It is decided as it is proved that there are imperceptible bodies and invisible movements, although certain persons ridicule them. There are likewise, numberless perceptions which are not sufficiently distinguished for them to be perceived or remembered, but they are made known by certain consequences.

I have not read the book which contains this objection [that it is an inference from Locke's position, that a thing is not, because we are not sensible of it in our sleep], but it would not have been wrong to object to you, that it does not follow because the thought is not perceived that it ceases for that reason; for otherwise it could be said for the same reason, that there is no soul during the time when it is not perceived. And in order to refute this objection it is necessary to point out in particular of the thought that it is essential to it that it be perceived.

§ 11. [*It is not always conscious of it.*] There [that it is not easy to conceive that a thing can think and not be conscious that it

thinks] is, undoubtedly, the knot of the affair and the difficulty which has embarrassed able men. But here is the means of getting out of it. We must consider that we think of many things at once, but we attend only to the thoughts which are most important; and it could not be otherwise, for if we attend to all it would be necessary to think attentively of an infinity of things at the same time, all of which we feel and which make an impression upon our senses. I say even more: there remains something of all our past thoughts and none can ever be entirely effaced. Now when we sleep without dreaming and when we are stunned by some blow, fall, symptom or other accident, there is formed within us an infinite number of minute confused sensations, and death itself can produce no other effect upon the souls of animals who without doubt ought, sooner or later, to acquire important perceptions, for all goes in an orderly manner in nature. I acknowledge, however, that in this state of confusion, the soul would be without pleasure and without pain, for these are noticeable perceptions.

§ 12. [*If a sleeping man thinks without knowing it, the sleeping and waking man are two persons.*] I, in turn, will make you another supposition, which appears more natural. Is it not true that it must be admitted that after some interval or some great change, one may fall into a condition of general forgetfulness? Sleidan, it is said, before his death, forgot all that he knew; and there are numbers of other examples of this sad occurrence. Let us suppose that such a man became young again and learned all *de novo*. Would he be another man for all that? It is not then memory which properly makes the same man. Nevertheless, the fiction of a soul which animates different bodies by turns without what happens to it in one of these bodies interesting it in the other, is one of those fictions contrary to the nature of things, which come from the incomplete notions of the philosophers, like space without body, and body without motion, and which disappear when one penetrates a little farther; for it must be known that each soul preserves all its preceding impressions and cannot divide itself equally in the way just mentioned. The future in each substance has a perfect connection with the past. It is this which constitutes the identity of the individual. Moreover, memory is not necessary nor even always possible, on account of the multitude of present and past impressions which coöperate toward our present thoughts;

for I do not believe there are in man thoughts of which there is not some effect at least confused, or some remnant mixed with subsequent thoughts. Many things can be forgotten, but they could also be remembered long afterward if they were recalled as they should be.

§ 13. [*Impossible to convince those that sleep without dreaming, that they think.*] One is not without some feeble feeling while asleep, even when the sleep is dreamless. Waking itself shows it, and the easier it is to awaken one, the more feeling one has of what is going on without him, although this feeling is not always sufficiently strong to cause the awakening.

§ 15. [*Upon this hypothesis, the thoughts of a sleeping man ought to be the most rational.*] All impressions have their effect, but all the effects are not always noticeable. When I turn to one side rather than to another, it is very often through a series of minute impressions of which I am not conscious, and which render one movement a little more uncomfortable than the other. All our unpremeditated actions are the results of a coöperation of minute perceptions, and even our customs and passions, which have such influence in our deliberations, come therefrom; for these habits grow little by little, and consequently without the minute perceptions, we should not arrive at these noticeable dispositions. I have already remarked that he who would deny these effects in morals, would imitate the poorly instructed persons who deny insensible corpuscles in physics; and yet I see that there are among those who speak of liberty those who, taking no notice of these insensible impressions, capable of inclining the balance, imagine an entire indifference in moral actions, like that of the ass of Buridan divided equally between two meadows. And of this we shall speak more fully in what follows. I acknowledge, however, that these impressions incline without necessitating.

§ 23. [*When does a man begin to have ideas?*] I am of the same opinion [namely, that it is when he has some sensation]: but it is by a principle a little peculiar, for I believe that we are never without thoughts and also never without sensation. I distinguish only between ideas and thoughts; for we have always all pure or distinct ideas independently of the senses; but thoughts always correspond to some sensation.

§ 25. [*In the perception of simple ideas the soul is for the most part passive.*] How can it be that it is merely passive with regard to the perception of all simple ideas, since, according to your own avowal, there are simple ideas the perception of which comes from reflection, and since the mind gives itself thoughts from reflection, for it is itself which reflects? Whether it can refuse them is another question, and it cannot do it undoubtedly without some reason which turns it aside from them, when there is some occasion for it.

CHAPTER IV.

Of solidity.

§ 1. [*We receive this idea from touch.*] And at bottom solidity, in so far as the notion is distinct, is conceived by the pure reason, although the senses furnish to the reason that by which to prove that it is in nature.

CHAPTER V.

Of simple ideas of divers senses.

These ideas which are said to come from more than one sense, as those of space, figure, motion, rest, are given us rather by the common sense, that is to say, the mind itself, for these are ideas of the pure understanding, but which have relation to that which is exterior and which the senses make us perceive; also they are capable of definitions and demonstrations.

CHAPTER VII.

Of ideas which come from sensation and from reflection.

§ 1. [*Pleasure and pain, power, existence, etc.*] It seems to me that the senses could not convince us of the *existence* of sensible things without the aid of the reason. Thus I believe the consideration of existence comes from reflection. Those of *power* and of *unity* come also from the same source and are of an entirely different nature from the perceptions of pleasure and of pain.

CHAPTER VIII.

Other considerations concerniny simple ideas.

§ 2. [*Privative qualities.*] I had not believed that the privative nature of repose could be doubted. It suffices for it that motion in

body be denied; but it does not suffice for motion that repose be denied, and something more must be added in order to determine the degree of motion, since it receives essentially more or less, while all repose is equal. It is another thing when we speak of the cause of repose, which must be positive in secondary matter or mass. I should further believe that the very idea of repose is privative, that is, that it consists only in negation. It is true that the act of denying is a positive thing.

§ 10. [*Secondary qualities.*] I believe that it can be said that *power*, when it is intelligible and can be distinctly explained, ought to be counted among *primary qualities;* but when it is only sensible and gives but a confused idea, it ought to be put among *secondary qualities.*

CHAPTER IX.

Of perception.

§ 1. [*Perception the first simple idea of reflection.*] It might, perhaps, be added that brutes have perception and that it is not necessary that they have thought, that is to say, that they have reflection or what may be its object. Also we ourselves have minute *perceptions* of which we are not conscious in our present state. It is true that we could very well perceive them and reflect on them if we were not turned aside by their multitude which distracts our minds, or if they were not effaced or rather obscured by the greater ones.

§ 4. I should prefer to distinguish between *perception* and *consciousness* (*s'apercevoir*). The perception of light or of color, for example, of which we are conscious is composed of many minute perceptions of which we are not conscious; and a noise of which we have a perception but to which we do not attend, becomes apperceptible by a little addition or augmentation. For if what precedes made no impression on the soul, this small addition would also make none and the whole would make no more.

§ 8. [“*The problem of Molineux.*”] I think that supposing that the blind man knows that these two figures which he sees are those of the cube and of the globe, he would be able to discern them and to say without touching them, this is the globe, this is the cube.

Perhaps Molineux and the author of the *Essay* are not so far from my opinion as at first appears, and that the reasons of their

opinion, contained apparently in the letter of the former who has employed it with success in order to convince people of their folly, have been suppressed purposely by the latter in order to give more exercise to the mind of his readers. If you will weigh my answer you will find that I have put a condition in it which can be considered as comprised in the question; it is, that the only thing in question is that of distinguishing, and that the blind man knows that the two figured bodies which he must distinguish are there, and that thus each of the appearances which he sees is that of the cube or that of the globe. In this case, it seems to me beyond doubt that the blind man who ceases to be blind, can distinguish them by the principles of the reason joined to what touch has provided him with beforehand of sensible knowledge. For I do not speak of what he will do perhaps in fact and immediately, being stunned and confounded by the novelty and otherwise little accustomed to drawing consequences. The foundation of my opinion is that in the globe there are no points distinguishable on the side of the globe itself, all being there level and without angles, whereas in the cube there are eight points distinguished from all the others. If there were not this means of distinguishing the figures a blind man could not learn the rudiments of geometry by touch. Nevertheless, we see that those born blind are capable of learning geometry and have even always some rudiments of natural geometry, and that most often geometry is learned by the sight alone, without employing touch, as a paralytic, or other person to whom touch has been almost interdicted, might and even must do. And it must be that these two geometries, that of the blind man and that of the paralytic, meet and coincide and even return to the same ideas although there are no common images. This again shows how necessary it is to distinguish *images* from *exact ideas* which consist in definitions. It would certainly be very interesting and even instructive to examine well the ideas of one born blind to hear his descriptions of figures. For he might come to this and he might even understand the doctrine of optics in so far as it depends upon distinct and mathematical ideas, although he would not be able to reach a conception of what is clear-confused, that is to say, the image of light and of colors.—It would also be very important to examine the ideas that a deaf and dumb man might have of non-figured things. —Men are very negligent in not getting an exact knowledge of the ways of thinking of such persons.

§ 11. [*Perception puts the difference between animals and inferior beings.*] I am inclined to believe that there is also among plants some perception and desire, because of the great analogy there is between plants and animals; and if there is a vegetable soul, as is the common opinion, it must have perception. However, I do not cease to ascribe to mechanism all that takes place in the body of the plants and animals, except their first formation. Thus I agree that the movement of the plant called sensitive comes from the mechanism, and I do not approve of having recourse to the soul when the detail of the phenomena of plants and animals is to be explained.

§ 13. Very good; and I think almost as much could be said of plants. But as to man, his perceptions are accompanied by the power of reflection which passes to the act when there is occasion. But when he is reduced to a state in which he is like one in a lethargy and almost without feeling, reflection and consciousness cease and universal truths are not thought of. Nevertheless, the innate and acquired faculties and dispositions and even the impressions which are received in this state of confusion do not cease for that reason and are not effaced although they are forgotten; they will even have their turn in order to contribute some day toward some noticeable effect; for nothing is useless in nature; all confusion ought to develop itself, animals even, having passed through a condition of stupidity, ought to return some day to more exalted perceptions; and since simple substances last forever, it will not do to judge of eternity by some years.

CHAPTER XI.

Of the faculty of discerning ideas.

§ 10. [*Brutes abstract not.*] I am of the same opinion. They know apparently whiteness and notice it in chalk as in snow; but this is not yet abstraction, for it requires a consideration of what is common, separated from what is particular, and consequently there enters therein the knowledge of universal truths, which is not given to brutes. It is well observed also that the brutes that speak do not make use of words to express general ideas, and that men deprived of the use of speech and of words do not fail to invent other general signs.

§ 11. The brutes pass from one imagination to another by the connection which they have felt here before; for example, when the master takes a stick the dog is apprehensive of being struck. And on many occasions children, as likewise other men, have no other procedure in passages from thought to thought. This might be called *consecution and reasoning* in a very broad sense. But I prefer to conform to the received usage in confining these words to man and in restricting them to the knowledge of some *reason* of the connection of perceptions which sensations alone could not give; their effect being but to cause us naturally to expect another time the same connection which has been noticed before, although the reasons are no longer the same; a fact which often deceives those who govern themselves merely by the senses.

§ 17. [*Dark room.*] [Cf. opening remarks of the next chapter.]

CHAPTER XII.

Of complex ideas.

In order to render the resemblance greater it would be necessary to suppose that there was in the dark room to receive the species a cloth, which was not smooth but diversified by folds representing innate knowledge; that, furthermore, this cloth or canvas being stretched had a sort of elasticity or power of acting, and even an action or reaction accommodated as much to past folds as to newly arrived impressions of the species. And this action would consist in certain vibrations or oscillations, such as are seen in a stretched cord when it is touched, of such a kind that it gives forth a sort of musical sound. For not only do we receive images or traces in the brain but we also form them anew when we consider *complex ideas*. Thus the cloth, which represents our brain, must be active and elastic. This comparison would explain tolerably well what takes place in the brain; but as to the soul, which is a simple substance or *monad*, it represents without extension these same varieties of extended masses and has perception of them.

§ 3. [*Complex ideas are either modes, substances, or relations.*] This division of the objects of our thoughts into substances, modes and relations is satisfactory to me. I believe that the qualities are but modifications of substances, and that the understanding adds thereto the relations. This is of more consequence than is thought.

§ 5. [*Simple and mixed modes.*] Perhaps a dozen or score are but relations and are constituted by relation to the understanding. Units are separate and the understanding puts them together however dispersed they may be. Nevertheless, although relations are from the understanding they are not without foundation and reality. For the first Understanding is the origin of things; and even the reality of all things, except simple substances, consists only in the foundation of the perceptions of the phenomena of simple substances. It is often the same thing as regards mixed modes, that is to say, that it would be necessary to refer them back to other relations.

CHAPTER XIII.

Of simple modes, and first of those of space.

§ 17. [*Whether space is substance or accident, not known.*] I have reason to fear that I shall be accused of vanity in wishing to determine what you, sir, acknowledge not to know. But there is room for believing that you know more on this point than you say or believe you do. Some have believed that God is the place of things. Lessius and Guerike, if I am not mistaken, were of this opinion; but then place contains something more than we attribute to space which we strip of all action; and in this way it is no more a substance than time, and if it has parts it could not be God. It is a relation, an order, not only among existing things but also among possible things as if they existed. But its truth and reality is founded in God, like all the eternal truths.

It is best then to say that space is an order, but that God is its source.

§ 19. [*Substance and accident of little use in philosophy.*] I acknowledge that I am of another opinion, and that I believe that the consideration of substance is a point of philosophy of the greatest importance and of the greatest fruitfulness.

CHAPTER XIV.

Of duration and its simple modes.

§ 16. [*It is not motion but the constant train of ideas in our minds while awake that furnishes us with the idea of duration.*] A train of perceptions awakens in us the idea of duration but it does not make it. Our perceptions never have a train sufficiently con-

stant and regular to correspond to that of time, which is a uniform and simple *continuum*, like a straight line. The change of perceptions gives us occasion to think of time, and it is measured by uniform changes; but if there should be nothing uniform in nature, time would not cease to be determined, just as place would not cease to be determined also if there should be no fixed or immovable body.

§ 24. The void which can be conceived in time indicates, like that in space, that time and space apply as well to possible as to existing things.

§ 26. Time and space are of the nature of eternal truths which concern equally the possible and the existing.

§ 27. [*Eternity.*] But in order to derive the notion of eternity it is necessary to conceive more, viz., that the same reason subsists always for going farther. It is this consideration of the reasons which completes the notion of the infinite or of the indefinite in progresses. Thus the senses alone could not suffice to make us form these notions. And at bottom it may be said that the idea of the *Absolute* is anterior in the nature of things to *that of the limits* which are added. But we do not notice the first save in beginning with what is limited and which strikes our senses.

CHAPTER XVII.

Of infinity.

§ 1. [*Infinity, in its original intention, attributed to space, duration and number.*] The true infinite, strictly speaking, is only in the *Absolute*, which is anterior to all composition and is not formed by the addition of parts.

§ 3. [*Hence we come by the idea of infinity.*] Take a straight line and prolong it in such a way that it is double the first. Now it is clear that the second, being perfectly similar to the first, can be doubled in the same way in order to give a third which is also similar to the preceding; and the *same reason subsisting always* it will never be possible to stop; thus the line can be prolonged *ad infinitum;* in such a way that the consideration of the infinite comes from that of the similarity or of the *same reason*, and its origin is the same as that of universal and necessary truths. This shows how what gives completion to the conception of this idea is found in us and could not come from the experiences of the senses;

just as necessary truths could not be proved by induction nor by the senses. The idea of the *Absolute* is in us internally, like that of being. These absolutes are nothing but the attributes of God and it can be said that they are no less the source of the ideas than God is himself the principle of beings. The idea of the absolute in relation to space is no other than that of the immensity of God, and so of the others. But we deceive ourselves in imagining an absolute space, which would be an infinite whole, composed of parts. There is no such thing. It is a notion which involves a contradiction, and these infinite wholes and their opposites, the infinitely minutes, are only admissible in the calculations of geometers just like the imaginary roots of algebra.

§ 16. [*We have no positive idea of infinity nor of infinite duration.*] I believe that we have a positive idea of both, and this idea will be true provided it is not conceived as an infinite whole but as an absolute or attribute without limits, which is the case as regards the *eternity* in the necessity of the existence of God, without depending on parts and without forming the notion by an addition of times. From this is also seen, as I have already said, that the origin of the notion of the infinite comes from the same source as that of necessary truths.

CHAPTER XIX.

Of the modes of thinking.

§ 1. [*Sensation, remembrance, contemplation, &c.*] It is well to clear up these notions and I shall try to aid in it. I will say then that it is *sensation* when we perceive an external object; that *remembrance* is its repetition without the object returning; but when we know that we have had it, it is *memory*. *Contemplation* is commonly employed in a sense different from yours, namely, for a condition where we free ourselves from business in order to apply ourselves to some meditation. But since there is no word that I know of which fits your notion, sir, the one you employ may be applied to it. We give *attention* to the objects which we distinguish and prefer to others. When attention continues in the mind, whether the external object continues or not, and even whether it is present or not, this is *consideration;* which when it concerns knowledge without reference to action will be *contemplation*. Attention, the aim of which is *to learn* (that is to say, to

acquire knowledge in order to preserve it), is *study*. To consider in order to form some plan is to *meditate;* but revery appears to be nothing but the pursuing of certain thoughts through the pleasure taken in them without having other end; this is why revery may lead to insanity: one forgets self, forgets the *dic cur hic*, approaches dreams and chimeras, builds castles in Spain. We cannot distinguish *dreams* from sensations except because they are not connected with them; they are, as it were, a world apart. *Sleep* is a cessation of sensations, and so *trance* is a very profound sleep from which one can be aroused with difficulty, which comes from a transient internal cause which distinguishes it from the profound sleep which comes from a narcotic or from some lasting injury to the functions, as in lethargy. Trances are sometimes accompanied by *visions;* but there are some without trance; and *vision*, it seems, is nothing but a dream which passes for a sensation, as if it taught us the truth of the objects. And when these visions are divine there is in fact truth; which may be known, for example, when they contain particularized prophecies which the event justifies.

§ 4. [*Hence it is probable that thinking is the action, not the essence of the soul.*] Undoubtedly thought is an action and could not be the essence; but it is an essential action, and all substances have such. I have shown above, that we have always an infinity of minute perceptions without our being conscious of them. We are never without *perceptions* but it is necessary that we be often without *apperceptions*, namely, when there are no distinct perceptions. It is for want of having considered this important point that a philosophy loose and as little noble as solid has prevailed among so many men of good minds, and because we have hitherto almost ignored what there is most beautiful in souls. This has also caused men to find so much plausibility in the error which teaches that souls are of a perishable nature.

CHAPTER XX.

Of modes of pleasure and pain.

§ 1. [*Pleasure and pain, simple ideas.*] I believe that there are no perceptions which are entirely indifferent to us, but it is enough that their effect be not noticeable in order that they may be called so, for *pleasure* and *pain* appear to consist in an aid or in a noticeable impediment. I assert that this definition is not nominal and that one cannot be given.

§ 2. [*Good and evil, what.*] I am also of this opinion. The good is divided into the praiseworthy, agreeable, and useful; but at bottom I believe that it must be either itself agreeable or contributing to something else which can give us an agreeable feeling; that is to say, the good is agreeable or useful and the praiseworthy itself consists in a pleasure of the mind.

§§ 4, 5. [*Love. Hatred.*] I gave very nearly this same definition of *love* when I explained the principles of justice in the preface to my *Codex Juris Gentium Diplomaticus*, namely, that to *love* is to be led to take pleasure in the perfection, well-being or happiness of the beloved object. And for this reason we do not consider nor demand any other pleasure for self than just that which is found in the well-being or pleasure of the one loved; but in this sense we do not properly love what is incapable of pleasure or of happiness, and we enjoy things of this nature without, for that reason, loving them, if this is not by a prosopopœia, and as if we imagine that they themselves enjoy their perfection. It is not then properly love when we say that we love a beautiful picture because of the pleasure we take in thinking of its perfections. But it is permissible to extend the meaning of the terms, and usage varies here. Philosophers and theologians even distinguish two kinds of love, namely, the *love* which they call *love of conquest*, which is nothing else than the desire or feeling we have for what gives us pleasure without our interesting ourselves as to whether it receives pleasure; and the *love of benevolence*, which is the feeling we have for him who, by his pleasure or happiness, gives the same to us. The first causes us to have in view our pleasure and the second that of others, but as making or rather constituting ours, for if it should not react upon us in some sort we could not interest ourselves in it, since it is impossible, whatever may be said, to be indifferent to one's own good. And this is how *disinterested* or non-mercenary *love* must be understood, in order to conceive well its nobleness and yet not to fall into the chimerical.

§ 6. [*Desire*]. This consideration of *uneasiness* is a capital point in which the author has particularly shown his penetrating and profound spirit. This is why I have given it some attention, and after having considered the matter well, it appears to me that the French word *inquietude* (*restlessness*), if it does not sufficiently express the meaning of the author, fits nevertheless, in my opinion,

the nature of the thing; and the English word uneasiness, if it stands for a displeasure, fretfulness (*chagrin*), inconvenience, and in a word some effective pain, would be inappropriate. I should prefer to say that in desire in itself there is rather a disposition and preparation toward pain than pain itself. It is true that this perception sometimes does not differ from that which is in pain than as less does from more, but this is because the degree is the essence of pain, for it is a noticeable perception. This is also seen by the difference which there is between appetite and hunger; for when the irritation of the stomach becomes too strong it incommodes; so that it is necessary also to apply here our doctrine of perceptions too minute to be apperceptible; for if what takes place in us when we have an appetite and desire were sufficiently magnified it would cause us pain. This is why the infinitely wise author of our being has acted for our good, when he ordained that we should be often in ignorance and in confused perceptions. This is in order to act more promptly by instinct and not to be incommoded by the too distinct sensations of many objects, which do not altogether come back to us, and which nature has not been able to do without in order to obtain its ends. How many insects do we not swallow without our being conscious of it? how many persons do we see who having too fine a sense of smell are thereby incommoded? and how many disgusting objects should we see if our vision were sufficiently piercing? It is also by this skill that nature has given us the incitements of desire, like the rudiments or elements of pain or, so to speak, semi-pains, or (if you wish to speak so as to express yourself more forcibly) minute inapperceptible pains, to the end that we may *enjoy the advantage of evil* without being incommoded thereby. For otherwise if this perception were too distinct we would always be miserable in waiting for the good, whereas this continual victory over these semi-pains which are felt in following one's desire and satisfying in some sort this appetite or this longing, gives us many semi-pleasures, the continuation and collection of which (as in the continuation of the impulse of a heavy body which descends and acquires force) becomes in the end an entire and real pleasure. And at bottom without these semi-pains there would be no pleasure, and there would be no means of perceiving that something, by being an obstacle which prevents us from putting ourselves at our ease, assists us and aids us. It is also in

this that the affinity of pain and of pleasure is recognized, which Socrates notices in the Phaedo of Plato when the feet long to be in action. This consideration of the minute aids or small deliverances and imperceptible disengagements of the arrested tendency from which noticeable pleasure finally results, serves also to give some more distinct knowledge of the confused idea which we have and ought to have *of pleasure and of pain;* just as the feeling of heat or of light results from many minute movements which express those of the objects, as I have said above (ch. 9, § 13), and do not differ therefrom save in appearance and because we are not conscious of this analysis; whereas many to-day believe that our ideas of sensible qualities differ *toto genere* from motions and from what takes place in the objects, and are something primitive and inexplicable, and even arbitrary, as if God made the soul feel what seems good to him in place of what takes place in the body; an opinion very far removed from the true analysis of our ideas. But to return to *uneasiness*, that is to say, to the minute imperceptible solicitations which keep us always in breath, these are confused determinations such that we often do not know what we lack, whereas in *inclinations and passions*, we at least know what we need, although the confused perceptions enter also into their manner of acting, and the same passions also cause this uneasiness or longing. These impulses are like so many small springs which try to unbend and which cause our machine to act. And I have already remarked thereon, that it is through this that we are never indifferent, when we appear to be most so, for example, to turning to the right rather than to the left at the end of a path. For the side which we take comes from these insensible determinations mingled with the actions of the objects and of the interior of the body, which cause us to find ourselves more at our ease in one than in the other way of moving ourselves. The pendulum of a clock is called in German *Unruhe*, that is to say, *uneasiness.* It can be said that it is the same in our body which can never be perfectly at its ease; because if it should be so, a new impression of the objects, a slight change in the organs, in the vessels, and in the viscera would change at once the balance and would cause them to make some slight effort in order to regain the best state which they can be in; which produces a continual strife, which causes, so to speak, the *uneasiness* of our clock; so that this term is satisfactory to me.

§ 7. [*Joy*]. There are no words in the languages sufficiently appropriate to distinguish kindred notions. Perhaps the Latin *gaudium* approaches nearer this definition of joy than *laetitia*, which is also translated by the word *joy;* but then it seems to me to signify a state in which pleasure predominates in us, for during the profoundest sorrow and amidst the most piercing griefs one can take some pleasure, as in drinking or in listening to music, but the pain predominates; and likewise amid the sharpest pains, the mind can be in joy, as happened to the martyrs.

§ 8. [*Sorrow.*] Not only the actual presence but also the fear of an evil to come can make sad, so that I believe the definitions of joy and of sorrow, which I have just given, come nearest to usage. As to *uneasiness*, there is in pain, and consequently in sorrow, something more; and uneasiness is even in joy, for it makes men wide awake, active, full of hope for going farther. *Joy* has been able to cause death by excess of emotion, and then there was in it even more than uneasiness.

§§ 9, 10. [*Hope and Fear.*] If uneasiness signifies a pain, I acknowledge that it always accompanies fear; but taking it for this insensible incitement which urges us on, it can also be applied to hope. The Stoics took the passions for opinions; thus their hope was the opinion of a future good, and fear, the opinion of a future evil. But I prefer to say that the passions are neither contentments or pains, nor opinions, but tendencies or rather modifications of the tendency, which come from opinion or from feeling, and which are accompanied by pleasure or displeasure.

§ 11. [*Despair.*] Despair taken for the passion will be a sort of strong tendency which finds itself wholly arrested, causing a violent struggle and much pain. But when the despair is accompanied by repose and indolence, it will be an opinion rather than a passion.

§ 12. [*Anger.*] Anger seems to be something more simple and more general since brutes, to whom no injury has been done, are susceptible of it. There is in anger a violent effort which strives to free itself from evil. The desire of vengeance can remain when one is cool and when one experiences hatred rather than anger.

§ 13. [*Envy.*] According to this [Locke's] notion, envy would be always a praiseworthy passion and always founded upon justice, at least in my opinion. But I do not know but that envy is often entertained toward recognized merit which one would not hesitate

to misuse if one were master. Envy is even entertained of people who have a good which one would not care to have one's self. One would be content to see them deprived of it without thinking to profit by their spoils, and even without being able to hope it. For some goods are like pictures painted *in fresco* which can be destroyed, but which cannot be taken away.

§ 11. [*Shame.*] If men took more pains to observe the exterior movements which accompany the passions, it would be difficult to conceal them. As to shame, it is worthy of consideration that modest persons, when they are simply witnesses of an improper action, sometimes feel movements resembling those of shame.

CHAPTER XXI.

Of power and of liberty.

§ 1. [*The idea of power, how got.*] If *power* corresponds to the Latin *potentia* it is opposed to *act*, and the passage from power to *act* is *change*. This is what Aristotle understands by the word *motion* when he says that *it is the act or perhaps the actuation of what is in power*. We can say then that *power* in general is the possibility of change. Now change or the act of this possibility, being action in one subject and passion in another, there will be also two powers, one passive the other active. The *active* could be called *faculty* and perhaps the *passive* could be called *capacity* or *receptivity*. It is true that active power is sometimes taken in a more perfect sense when in addition to the simple faculty there is a *tendency;* and it is thus that I employ it in my *dynamical* considerations. The word *force* might be appropriated to it in particular; and *force* would be either *entelechy* or *effort;* for *entelechy* (although Aristotle employs it so generally that it comprises also all action and all effort) appears to me more appropriate to *primitive acting forces*, and that of *effort* to *derivative forces*. There is even also a species of *passive power* more particular and more endowed with reality; it is this which is in matter when there is not only mobility, which is the capacity or receptivity for motion, but also *resistance*, which embraces *impenetrability and inertia*. *Entelechies*, that is to say, primitive or substantial tendencies, when they are accompanied by perception, *are souls*.

§ 4. [*The clearest idea of active power had from spirit.*] I am thoroughly in accord with you, that the clearest idea of active power

comes to us from spirit. It is also only in things which have an analogy with spirit, that is to say, in entelechies, for matter properly only indicates passive power.

§ 8. [*Liberty.*] The term *liberty* is very ambiguous. There is liberty of right and of fact. According to that of *right* a slave is not free, a subject is not entirely free, but a poor man is as free as a rich man. *Liberty of fact* consists either in the power *to will* as one ought, or in the power to do what one wills. It is of the *liberty of doing* of which you speak, and it has its degrees and varieties. Generally he who has most means is most free to do what he wishes: but, *in particular*, *liberty* is understood of the use of things which are wont to be in our power and especially of the free use of our body. Thus the prison or sicknesses which prevent us from giving to our body and to our limbs the motion which we wish and which we are ordinarily able to give, lessens our liberty. It is thus that a prisoner is not free, and that a paralytic has not the free use of his limbs. *Liberty to will* is also taken in two different senses. One is when it is opposed to the imperfection or to the slavery of the spirit, which is a coaction or constraint, but internal like that which comes from the passions. The other sense appears when liberty is opposed to necessity. In the first sense the Stoics said that the wise man only is free; and in fact the spirit is not free when it is occupied with a great passion, for one cannot then will as he ought to, that is to say, with the deliberation which is requisite. It is thus that God alone is perfectly free, and that created spirits are so only in so far as they are superior to the passions. And this liberty concerns properly our understanding. But the liberty of the spirit opposed to necessity concerns the naked will and in so far as it is distinguished from the understanding. This it is which is called *free-will*, and it consists in this, that one wishes that the strongest reasons or impressions which the understanding presents to the will do not prevent the act of the will from being contingent, and do not give an absolute or so to say metaphysical necessity. And it is in this sense that I am accustomed to say that the understanding can determine the will in accordance with the prevalence of perceptions and reasons, in such a way that even when it is certain and infallible it inclines without necessitating.

§ 13. [*Necessity, what.*] It seems to me that, properly speaking, although volitions are contingent, *necessity* ought not to be

opposed to volition but to *contingency*, and that necessity ought not to be confounded with determination, for there is not less of connection or of determination in thoughts than in motions (to be determined being quite different from being pushed or forced with constraint). And if we do not always notice the reason which determines us, or rather by which we determine ourselves, it is because we are as little capable of being conscious of the whole extent of our spirit and of its thoughts, most often imperceptible and confused, as we are of disentangling all the mechanisms which nature makes play in the body. Thus, if by necessity is understood the certain determination of man, which a perfect knowledge of all the circumstances of what takes place within and without the man could enable a perfect mind to foresee, it is certain that thoughts being just as determined as the motions which they represent, every free act would be necessary. But the necessary must be distinguished from the contingent though determined; and not only contingent truths are not necessary, but even their connections are not always of an absolute necessity, for it must be acknowledged that there is a difference in the manner of determination between the consequences which exist in necessary matter and those which exist in contingent matter. Geometrical and metaphysical consequences necessitate, but physical and moral incline without necessitating; the physical even having something moral and voluntary in relation to God, since the laws of motion have no other necessity than that of [the principle of] the best. Now God chooses freely although he is determined to choose the best; and as bodies themselves do not choose (God having chosen for them), usage has settled that they be called *necessary agents;* to which I am not opposed, provided the necessary and the determined be not confounded, and that it be not imagined that free beings act in an indetermined manner; an error which has prevailed in certain minds and which destroys the most important truths, even this fundamental axiom, *that nothing occurs without reason*, without which neither the existence of God nor other great truths could be well demonstrated. As to *constraint*, it is well to distinguish two species of it. The one *physical*, as when a man is taken to prison in spite of himself, or is thrown over a precipice; the other *moral*, as, for example, the constraint of a greater evil, and this action, although in some manner forced, is nevertheless voluntary. One can also be forced by the consideration

of a greater good, as when a man is tempted by having proposed to him a too great advantage, although this is not customarily called constraint.

§ 21. [*Liberty belongs to the agent, or man.*] When we reason about the liberty of the will, or about the *free will*, we do not ask if the man can do what he wishes, but if there is enough independence in his will itself. We do not ask if he has his limbs free or elbow-room, but if he has his spirit free and in what this consists. In this respect one intelligence could be more free than another, and the supreme intelligence will enjoy perfect liberty of which the creatures are not capable.

§§ 41, 42. [*All desire happiness. Happiness, what.*] I do not know whether the greatest pleasure is possible. I believe rather that it can grow *ad infinitum;* for we do not know how far our knowledge and our organs can be extended in all the eternity which awaits us. I believe then that *happiness* is a lasting pleasure; which could not be so without there being a continual progress to new pleasures. Therefore, of two persons, one of whom will go incomparably quicker and through greater pleasures than the other, each will be happy in himself and *apart by himself*, although their happiness will be very unequal. Happiness is then, so to speak, a road through pleasures; and pleasure is merely a step and an advancement towards happiness, the shortest which can be made according to the present impressions, but not always the best. The right road may be missed in the desire to follow the shortest, as the stone which goes straight may encounter obstacles too soon, which prevent it from advancing quite to the center of the earth. This shows that it is the reason and the will which transport us toward happiness, but that feeling and desire merely lead us to pleasure. Now, although pleasure can not receive a nominal definition, any more than light or color, it can however receive, like them, a causal definition; and I believe that at bottom *pleasure* is a feeling of perfection and *pain* a feeling of imperfection, provided it is noticeable enough to cause us to be conscious of it.

§ 47. [*The power to suspend the prosecution of any desire makes way for consideration, and in this freedom of will consists.*] The execution of our desire is suspended or arrested when this desire is not strong enough to move us, and to overcome the trouble and inconvenience of satisfying it. But when the desire is strong

enough in itself to move us, if nothing prevents, it can be arrested by contrary inclinations, be it that they consist in a simple leaning which is like the element or the beginning of desire, be it that they extend to desire itself. Nevertheless as these inclinations, these leanings, and these contrary desires must be found already in the soul, it does not have them in its power, and consequently it cannot resist in a free and voluntary way where the reason can take part, if it had not also another means which is that of turning the mind elsewhere. But how can we think of doing it when there is need? for this is the point, especially if we are possessed by a strong passion. There is need, therefore, that the mind be prepared beforehand, and find itself already ready to go from thought to thought in order not to stop too long in a slippery and dangerous place.

For this, it is well to accustom one's self generally not to think except in passing of certain things, in order the better to preserve the freedom of the mind. But the best way is to accustom one's self to proceed methodically, and to attach one's self to a train of thoughts the connection of which reason and not chance (that is to say, insensible and casual impressions) establishes. And in order to do this, it is well to accustom one's self to collect one's self from time to time, and to raise one's self above the present tumult of impressions, to go forth, so to say, from the place where one is, to say to one's self "*dic cur hic? respice finem*, or where are we? or are we coming to the point?" Men would often have need of some one, established with an official title (as Philip, the father of Alexander the Great, had), to interrupt them and to recall them to their duty. But, for lack of such an officer, it is well for us ourselves to be accustomed to perform for ourselves this office. Now being once in a condition to arrest the effect of our desires and of our passions, that is to say, to suspend action, we can find the means of combating them, be it by the contrary desires or inclinations, be it by diversion, that is to say, by occupations of another nature. It is by these methods and these artifices that we become, as it were, masters of ourselves, and that we can make ourselves think and do in time what we would will to and what reason commands. Nevertheless, it is always by determined ways and never without ground or by the imaginary principle of a perfect indifference or equilibrium, in which some would make the essence of liberty to consist, as if one could determine himself groundlessly and even against all ground, and go directly counter to the *prevalence* of the impressions and the inclinations.

§ 51. [*The necessity of pursuing true happiness the foundation of liberty.*] True happiness ought always to be the object of our desires, but there is ground for doubting whether it is. For often we hardly think of it, and I have remarked here more than once that the less desire is guided by reason the more it tends to present pleasure and not to happiness, that is to say, to lasting pleasure, although it tends to make it last. Cf. §§ 36, 41.

CHAPTER XXIII.

Of our complex ideas of substances.

§ 1. [*Ideas of substances, how made.*] On the contrary it is rather the *concretum* as odorous, as warm, as glittering, which comes into our minds, rather than the *abstractions* or qualities (for it is they which are in the substantial object and not the ideas) as, namely, heat, light, etc., which are much more difficult to comprehend. It may even be doubted whether these accidents are real entities, as in fact they are very often only relations. It is known also that it is the abstractions which occasion most difficulty when it is desired to examine them minutely, as those know who are acquainted with the subtilties of the scholastics, whose most intricate speculations fall at one blow if we will banish abstract entities and resolve not to speak ordinarily except by concretes, and not to admit any other terms in the demonstrations of the sciences, but those which represent substantial subjects. Thus it is *nodum quærere in scirpo*, if I dare say it, and to invert things, if we take the qualities or other abstract terms for what is easiest and the concrete ones for something very difficult.

§ 2. [*Our idea of substance in general.*] In distinguishing two things in substance, attributes or predicates and the common subject of these predicates, it is not strange that nothing in particular can be conceived in this subject. It must necessarily be so, since we have already separated all the attributes in which some detail could be conceived. Therefore to demand something more in this pure *subject in general* than what is necessary in order to conceive that it is the same thing (e. g., which understands and wills, which imagines and reasons), this is to demand the impossible and to run counter to one's own supposition, made in abstracting and in conceiving separately the subject and its qualities or accidents. The same pretended difficulty could be applied to the notion of *being*

and to all that is most clear and most primitive; for we could ask philosophers what they conceive in conceiving pure *being in general;* for all detail, being thereby excluded, there would be as little to say as when it is asked what pure *substance in general* is. I think, therefore, that the philosophers do not deserve to be ridiculed, as is done here in comparing them to the Indian philosopher, who when asked what the earth rested on, replied that it was a large elephant, and when asked what the elephant rested on, said that it was a great tortoise, and, finally, when pressed to tell what the tortoise rested on, was reduced to saying that it was *something, I know not what.* However, the consideration of substance, very inconsiderable as it seems to be, is not so void and sterile as is thought. Certain consequences come from it which are most important to philosophy, and which are capable of giving it a new aspect. [Cf. ch. 13, § 19.]

§ 4. [*No clear idea of substance in general.*] For my part, I believe that this opinion of our ignorance comes from our demanding a kind of knowledge which the object does not permit of. The true mark of a clear and distinct notion of an object is the means we have of knowing many truths of it by *à priori* proofs, as I have pointed out in an essay on truths and ideas inserted in the *Acta* of Leipsic of the year 1684. [Cf. Art. III.]

§ 15. [*Ideas of spiritual substances, as clear as of bodily substances.*] It is well said, and it is very true, that the existence of the mind is *more certain* than that of sensible objects.

CHAPTER XXV.

Of relation.

§ 1. [*Relation, what.*] Relations and orders are like *entities of reason,* although they have their foundation in things; for it may be said that their reality, like that of eternal truths and possibilities, comes from the supreme reason.

CHAPTER XXVII.

Of identity and diversity.

§ 1. [*Wherein identity consists.*] There must always be, in addition to the difference of time and of place, an internal *principle* of *distinction;* and although there are many things of the same species, it is nevertheless true there are never any perfectly similar:

thus although time and place (that is, the relation to the external) serve us in distinguishing things which we do not well distinguish through themselves, things are none the less distinguishable in themselves. The characteristic of *identity* and of *diversity* does not consist, therefore, in time and in place.

§ 3. [*Principium individuationis.*] *The principle of individuation* corresponds in individuals to the principle of distinction of which I have just spoken. If two individuals were perfectly similar and equal, and (in a word) *indistinguishable* in themselves, there would be no principle of individuation; and I even venture to say that there would be no individual distinction, or different individuals, on this condition.

§ 9. [*Personal identity.*] I am also of the opinion that consciousness, or the feeling of the *ego*, proves a moral or personal identity. And it is in this that I distinguish the *unceasingness* of the soul of a brute from the *immortality* of the soul of man: both retain *physical and real identity;* but as for man, it is conformed to the rules of divine providence that the soul preserve in addition moral identity which belongs to us in order to constitute the same person, capable consequently of feeling punishments and recompenses. It appears that you, sir, hold that this apparent identity might be preserved, even if there should be no real identity. I should believe that this might perhaps be possible by the absolute power of God; but according to the order of things the identity apparent to the person himself, who feels himself the same, supposes the real identity at each *following stage*, accompanied by reflection or by the feeling of the ego, an intimate and immediate perception not being able to deceive naturally. If man could be only a machine and have in addition consciousness, it would be necessary to be of your opinion, sir; but I hold that this case is not possible, at least naturally. I do not mean to say either that *personal identity* and even the *ego* do not remain in us, and that I am not that *ego* which was in the cradle, under the pretext that I no longer remember anything which I then did. It is sufficient in order to find moral identity by itself that there be a *common bond of consciousness* from a neighboring state, or even one a little removed, to another, even if some leap or forgotten interval should be mingled with it. Thus, if an illness had caused an interruption of the continuity of the connection of consciousness so that I should

not know how I had come into the present state, although I might remember more distant things, the testimony of others might fill the gap of my remembrance. I might even be punished on this testimony if I had done some evil of deliberate forethought in an interval which I had forgotten a little while afterwards through this illness. And if I came to forget all past things, so that I should be obliged to let myself be taught anew, even to my name and to reading and writing, I could always learn from others my past life in my preceding state, as I have preserved my rights without its being necessary to divide myself into two persons, and to make myself my own heir. All this suffices for maintaining the moral identity which makes the same person. It is true that if others conspired to deceive me (as I might even be deceived by myself, by some vision, dream or illness, believing that what I dreamed had happened to me), the appearance would be false; but there are cases in which we may be morally certain of the truth upon the report of others; and in relation to God whose bond of union with us makes the principal point of morality, error cannot enter. As regards the *ego*, it will be well to distinguish it from the *appearance of the ego* and from consciousness. The *ego* forms the real and physical identity, and the *appearance of the ego*, accompanied by truth, joins to it personal identity. Thus not wishing to say that personal identity does not extend farther than memory, I would say still less that the *ego* or physical identity depends on it. The real and personal identity is proved as certainly as is possible in matter of fact, by present and immediate reflection; it is proved sufficiently for common use by our remembrance of the interval, or by the corroborating testimony of others. But if God changed extraordinarily real identity, personal identity would remain, provided that man should preserve the appearances of identity, as well the internal (that is of consciousness) as the external, like those appearances which consist in what is evident to others. Thus consciousness is not the only means of establishing personal identity, and the report of others or even other marks may take its place. But there is difficulty if contradiction is found between these different evidences. Consciousness may be silent as in forgetfulness; but if it said very distinctly things which were contrary to the other evidences, we should be embarrassed in the decision and sometimes as if suspended between two possibilities: that of the error of our memory and that of some deception in the external evidences.

§ 14. An immaterial being or a spirit *cannot be despoiled* of all perception of its past existence. There remain to it impressions of everything which has formerly happened to it and it has even presentiments of everything which will happen to it; but these feelings are most often too slight to be distinguishable and for us to be conscious of them, although they may be developed some day. This continuation and connection of *perceptions* forms the same individual really; but *apperceptions* (that is, when we are conscious of past feelings) prove, farther, a moral identity and make the real identity appear. . . . . The late M. Van Helmont, the younger, believed, with certain rabbis, in the passing of the soul of Adam into the Messiah as into the new Adam. And I do not know whether he did not believe that he himself had been one of the ancients, very able man as he was otherwise. Now, if this passing of souls was true, at least in the possible way which I have explained above (but which does not appear probable), that is, that souls, retaining subtile bodies,should pass suddenly into other gross bodies, the same individual would subsist always, in Nestor, in Socrates, and in some modern, and he might even make known his identity to that one who should sufficiently penetrate into his nature, by reason of the impressions or characters which would there remain of all that Nestor or Socrates has done, and which some sufficiently penetrating genius might read there. However, if the modern man had no internal or external means of knowing what he has been, it would be, so far as ethics is concerned, as if he had not been at all. But the probability is that nothing is neglected in the world, even in relation to morals, because God is its monarch, and his government is perfect.—Thus if souls passed into a new body gross or sensitive, they would always retain the expression of all of which they have had perception in the old, and it would even be necessary that the new body should feel it all so that the individual continuation will always leave its real marks.

§ 18. [*Object of reward and punishment.*] I confess that if God caused consciousnesses to be transferred to other souls, it would be necessary to treat them, according to ethical ideas, as if they were the same; but this would be to disturb the order of things groundlessly, and to make a divorce between the apperceptible and truth, which is preserved by insensible perceptions. This would not be rational because perceptions, at present insensible, may be developed

some day, for there is nothing useless, and eternity presents a large field for changes.

§ 29. [*Continued existence makes identity.*] I have pointed out to you the source of true physical identity; I have shown you that morals do not contradict it, any more than memory; that they could not always mark out physical identity to the person himself in question, nor to those who are in communication with him; but that nevertheless they never contradict physical identity, and never are divorced from it; that there are always created spirits which know or may know what is the truth respecting it; but that there is reason for thinking that what is indifferent as regards persons themselves can be so only for a time.

CHAPTER XXVIII.

Of other relations.

§ 5. [*Moral good and evil.*] I should prefer, for myself, to take as the measure of moral good and of virtue the invariable rule of reason that God has charged himself to maintain. Also we may be assured that by his means every moral good becomes physical, or, as the ancients said, all that is praiseworthy is useful; whereas, in order to express the idea of the author, it would be necessary to say that moral good or evil is a *good* or *evil* of imposition or institutive, which he who has the power in his hand tries to bring about or to prevent by pains or recompenses. Good is that which by the general institution of God is conformed to nature or to reason.

CHAPTER XXIX.

Of clear and obscure, distinct and confused ideas.

§ 2. In a short essay on ideas, true or false, clear or obscure, distinct or confused, inserted in the *Acta* of Leipsic in the year 1684, I have given a definition of *clear ideas* which is common to simples and compounds, and which accounts for what is said thereon here.

§ 13. [*Complex ideas may be distinct in one part and confused in another.*] This example [a chiliagon] shows that *idea* is here confounded with *image*. If someone proposes to me a regular polygon, sight and imagination could not make me understand the thousand sides which are in it; I have only a *confused* idea both of the figure and of its number, until I *distinguish* the number by counting. But

having found it, I know very well the nature and the properties of the proposed polygon, in so far as they are those of a chiliagon, and consequently I have the idea of it; but I could not have the image of a chiliagon, and it would be necessary to have the senses and the imagination more delicate and better exercised in order to thereby distinguish it from a polygon which should have one side less. But knowledge of figures does not depend upon the imagination any more than that of numbers, although it is of use thereto; and a mathematician may know exactly the nature of an enneagon or of a decagon because he has the means of making and examining them, although he cannot distinguish them by sight. It is true then that a workman or an engineer, who should not perhaps know the nature of the figures sufficiently, might have this advantage over a great geometrician, that he could distinguish them by merely seeing them without measuring them; as there are porters who will tell the weight of what they are to carry without the mistake of a pound, in which they will surpass the most skillful statistician in the world. This empirical knowledge, acquired by long practice, may have great advantages for acting promptly, as an engineer very often needs to do by reason of the danger to which he exposes himself by hesitating. However this *clear image*, or this feeling which we may have of a regular decagon or of a weight of ninety-nine pounds, consists only in a *confused idea*, since it is of no use in discovering the nature and the properties of this weight or of the regular decagon, which requires a *distinct idea*. And this example serves to show better the difference between ideas, or rather that between idea and image.

§ 15. [*Instance in eternity.*] This example does not seem to me to fit your purpose any better; but it is very appropriate to mine, which is to disabuse you of your notions on this point. For there reigns here the same confusion between image and idea. We have a complete and proper idea of eternity, since we have a definition of it, although we have no image of it; but the idea of infinites is not formed by the composition of parts, and the errors which are committed in reasoning concerning the infinite do not come from the lack of image.

Book IV. Of Knowledge.

CHAPTER I.

Of knowledge in general.

§§ 1 and 2. [1. *Our knowledge conversant about our ideas.* 2. *Knowledge is the perception of the agreement or disagreement of two ideas.*] Knowledge is employed still more generally, in such a way that it is found also in ideas or terms, before we come to propositions or truths. And it may be said that he who shall have seen attentively more pictures of plants and of animals, more figures of machines, more descriptions or representations of houses or of fortresses, who shall have read more ingenious romances, heard more curious narratives, he, I say, will have more knowledge than another, even if there should not be a word of truth in all which has been portrayed or related to him; for the practice which he has in representing to himself mentally many express and actual conceptions or ideas, renders him more fit to conceive what is proposed to him; and it is certain that he will be better instructed and more capable than another, who has neither seen nor read nor heard anything, provided that in these stories and representations he does not take for true that which is not true, and that these impressions do not hinder him otherwise from distinguishing the real from the imaginary, or the existing from the possible . . . . But taking *knowledge* in a narrower meaning, that is, for knowledge of truth, as you do here, sir, I say that it is very true that truth is always founded in the agreement or disagreement of ideas, but it is not true generally that our knowledge of truth is a perception of this agreement or disagreement. For when we know truth only empirically, from having experienced it, without knowing the connection of things and the reason which there is in what we have experienced, we have no perception of this agreement or disagreement, unless it be meant that we feel it confusedly without being conscious of it. But your examples, it seems, show that you always require a knowledge in which one is conscious of connection or of opposition, and this is what cannot be conceded to you.

§§ 3–7. [3. *This agreement fourfold.* 4. *First, Of identity or diversity.* 5. *Secondly, Relative.* 6. *Thirdly, Of co-existence.*

7. *Fourthly, Of real existence.*] I believe that it may be said that connection is nothing else than accordance or *relation*, taken generally. And I have remarked on this point that every relation is either of *comparison* or of *concurrence*. That of *comparison* gives diversity and identity, either in all or in something; that which makes the same or the diverse, the like or unlike. *Concurrence* contains what you call co-existence, that is, connection of existence. But when it is said that a thing exists or that it has real existence, this existence itself is the predicate; that is, it has an idea joined with the idea in question, and there is connection between these two notions. One may conceive also the *existence* of the object of an idea, as the concurrence of this object with me. So I believe that it may be said that there is only comparison or concurrence; but that comparison, which marks identity or diversity, and the concurrence of the thing with me, are relations which deserve to be distinguished among others. More exact and more profound researches might perhaps be made; but I content myself here with making remarks.

CHAPTER II.

Of the degrees of our knowledge.

§ 1. [*Intuitive.*] *Primitive* truths, which are known by *intuition* are of two kinds, like the *derivative*. They are either truths of *reason*, or truths of *fact*. Truths of reason are necessary and those of fact are contingent. Primitive truths of *reason* are those which I call by the general name of *identical*, because it seems that they do nothing but repeat the same thing without giving us any information. They are affirmative or negative . . . .

As respects *primitive truths of fact*, they are the immediate internal experiences of an *immediateness of feeling*. And here it is that the first truth of the Cartesians or of St. Augustine: *I think, hence I am*, that is, *I am a thing which thinks*, holds good. But it should be known that just as the identicals are general or particular, and that the one class is as clear as the other (since it is just as clear to say that *A is A*, as to say that *a thing is what it is*), so it is also with first truths of fact. For not only is it clear to me immediately that *I think;* but it is just as clear to me that *I have different thoughts;* that sometimes *I think of A*, and that sometimes *I think*

of B, etc. Thus the Cartesian principle is good, but it is not the only one of its kind. You see therefore that all *primitive truths* of reason or of fact have this in common, that they cannot be proved by anything more certain.

§ 14. [*Sensitive knowledge of particular existence.*] But let us come to this controversy which the sceptics carry on with the dogmatists over the existence of things *outside of us*. We have already touched upon it, but it is necessary to return to it here. I have formerly discussed it thoroughly both verbally and in writing, with the late Abbé Foucher, Canon of Dijon, a learned and subtle man.—Now I made him admit that the truth of sensible things consisted only in the *connection* of phenomena, which must have its reason, and that it is this which distinguishes them from dreams; but that the truth of our existence and of the cause of phenomena is of another kind, because it establishes substances; and that the sceptics spoiled whatever they say that is good, by carrying it too far, and by wishing even to extend their doubts to immediate experiences and to geometrical truths (a thing which M. Foucher, however did not do), and to the other truths of reason, which he did a little too much. But to return to ourselves, sir; you are right in saying that there is ordinarily a difference between feelings and imaginations; but the sceptics will say that more or less does not change the kind. Besides, although feelings are wont to be more vivid than imaginations, it is a fact nevertheless that there are cases where an imaginative person is impressed by his imaginations as much or perhaps more than another is by the truth of things; so that I believe that the true *criterion* as regards the objects of the senses is the *connection* of phenomena, that is, the connection of that which takes place in different places and times, and in the experience of different men, who are themselves, each to the others, very important phenomena on this score. And the connection of phenomena, which guarantees *truths of fact* in respect to sensible things outside of us, is verified by means of *truths of reason;* as the appearances of optics are explained by geometry. However it must be confessed that all this certainty is not of the highest degree, as you have well recognized. For it is not impossible, speaking metaphysically, that there may be a dream, continuous and lasting, like the life of a man; but it is a thing as contrary to reason as would be the fiction of a book which should be formed at haphazard

by throwing the type together pell mell. For the rest, it is also true that, provided the phenomena be connected, it does not matter whether they are called dreams or not, since experience shows that we are not deceived in the measures taken concerning phenomena when they are understood according to the truths of reason

CHAPTER III.

Of the extent of human knowledge.

§ 6. ["*Whether any mere material being thinks or no.*"] In the first place, I declare to you, sir, that when one has only confused ideas of *thought* and of *matter*, as one ordinarily has, it is not to be wondered at if one does not see the means of solving such questions. It is as I have remarked before that a person who has not ideas of the angles of a triangle except in the way in which one has them generally, will never think of finding out that they are always equal to two right angles. It must be considered that *matter*, taken for a *complete being* (that is, *secondary matter* opposed to *primary*, which is something simply passive and consequently incomplete), is only a mass, or that which results therefrom, and that every *real mass* supposes *simple substances* or *real unities;* and when we consider farther what belongs to the nature of these real unities, that is, *perception* and its consequences, we are transported, so to speak, into another world, that is to say, into the *intelligible world of substances*, whereas before we have been only among the *phenomena of the senses.* And this knowledge of the interior of matter shows sufficiently of what it is naturally capable, and that every time that God shall give organs fitted to express reasoning, the immaterial substance which reasons will not fail to be also given to it, by virtue of this harmony, which is again a natural result of substances. Matter could not subsist without immaterial substances, that is, without unities; after which it ought no longer to be asked whether God is at liberty to give them to it or not. And if these substances did not have in themselves the correspondence or harmony, of which I have just spoken, God would not act according to the natural order. To speak very simply of *giving* or of *according* powers is to return to the *naked faculties* of the schoolmen and to imagine minute subsisting beings, which can enter and depart like the pigeons of a pigeon-house. It is making substances of them

without thinking of it. The *primitive powers* constitute substances themselves; and the *derivative* powers, or, if you like, the faculties, are only *modes of being* which must be derived from substances, and they are not derived from matter as a machine merely, that is, in so far as we consider it abstractly only as the *incomplete being* of primary matter, or the simply passive. Here I think that you will agree with me, sir, that it is not in the power of a mere mechanism to cause perception, sensation, reason, to arise. They must therefore spring from some other substantial thing. To think that God acts differently and gives to things accidents which are not *modes of being* or modifications derived from substances, is to resort to miracles and to what the schoolmen called the *obediential power*, by a sort of supernatural exaltation, as when certain theologians claim that the fire of hell burns separated souls; in which case it might be even doubted if it were the fire which acted, and if God did not himself produce the effect, by acting in place of the fire. . . . .

The difficulty which remains is only in respect to those who wish to *imagine* what is only intelligible, as if they wanted to see sounds, or hear colors.

CHAPTER IV.

Of the reality of human knowledge.

§§ 1–5. [*Knowledge placed in ideas may be all bare vision. Answer.*] Our certainty would be slight or rather none, if it had no other foundation for simple ideas than that which comes from the senses. Have you forgotten, sir, how I showed that ideas are originally in our mind and that even our thoughts come to us from our own depths, without its being possible for other creatures to have an immediate influence upon the soul. Moreover the ground of our certainty in regard to the universal and eternal truths lies in the ideas themselves independently of the senses; as also pure and intelligible ideas do not depend upon the senses, for example, that of being, of one, of the same, etc. But the ideas of sensible qualities, as of color, of flavor, etc. (which in reality are only appearances), come to us from the senses, that is, from our confused perceptions. And the ground of the truth of contingent and particular things is in the succession, whereby the phenomena of the senses are connected just as the intelligible truths require. This is the difference which should be made between them; whereas

that which you make here between simple and compound ideas, and compound ideas belonging to substances and to accidents, does not seem to me well founded, since all intelligible ideas have their archetypes in the eternal possibility of things.

CHAPTER V.

Of truth in general.

§§ 1 and 2. [1. *What truth is.* 2. *A right joining or separating of signs; i. e., ideas or words.*] But what I find least to my taste in your definition of truth, is that truth is there sought in words. Thus the same meaning, being expressed in Latin, German, English, French, will not be the same truth, and it will be necessary to say with Hobbes, that truth depends on the good pleasure of men; which is speaking in a very strange way. Truth is even attributed to God, who you will admit (I think) has no need of signs. Finally, I have been already more than once surprised at the humor of your friends, who take pleasure in making essences and species, *nominal* truths.

We shall have therefore, farther, *literal truths*, which may be distinguished into truths of paper or of parchment, of the black of ordinary ink, or of printer's ink, if truths must be distinguished by signs. It is better, therefore, to place truths in the relation between the *objects* of ideas, which causes one to be included or not to be included in the other. This does not depend on languages and is common to us with God and the angels; and when God manifests a truth to us we acquire that one which is in his understanding, for although there is an infinite difference between his ideas and ours as respects perfection and extension, it is always true that there is agreement in the same relation. It is therefore in this *relation* that truth must be placed, and we may distinguish between *truths*, which are independent of our good pleasure, and *expressions*, which we invent as seems good to us.

§ 11. [*Moral and metaphysical truth*]. *Moral* truth is called *veracity* by some, and *metaphysical truth* is taken commonly by metaphysicians for an attribute of being, but it is a very useless attribute and one almost void of meaning. Let us content ourselves with seeking truth in the correspondence of propositions which are in the mind with the things in question. It is true that I have also attributed truth to ideas in saying that ideas are true or

false; but in that case I understand it in fact of the propositions which affirm the possibility of the object of the idea. And in this same sense it may be said farther that a *being is true*, that is to say, the proposition which affirms its actual or at least possible existence.

CHAPTER VII.

Of maxims.

§ 1. [*They are self-evident*]. This investigation is very useful and even important. But you must not imagine, sir, that it has been entirely neglected. You will find in a hundred places that the scholastic philosophers have said that these propositions are evident *ex terminis*, as soon as their terms are understood; so that they were persuaded that the force of conviction was founded on the apprehension of the terms, that is, in the connection of the ideas. But the geometricians have done much more: for they have undertaken very often to demonstrate them. . . . . As regards *maxims*, they are sometimes taken for established propositions, whether they are evident or not. This might be well for beginners, whom scrupulousness arrests; but when the establishing of science is in question, it is another matter. They are also often taken thus in ethics and even by the logicians in their *Topics*, in which there is an abundance of them, but a part of this contains some which are sufficiently vague and obscure. For the rest, I said publicly and privately a long while ago that it would be important to demonstrate all the secondary axioms of which we ordinarily make use, by reducing them to primitive or immediate and undemonstrable axioms, which are those which I called lately and elsewhere, *identical* ones.

§ 7. It may always be said that this proposition, *I exist*, is most evident, being a proposition which cannot be proved by any other, or an *immediate truth*. And to say, *I think therefore I am*, is not properly to prove existence by thought, since to think and to be thinking are the same thing; and to say, *I am thinking* is the same as to say, *I am*. Nevertheless you may exclude this proposition from the number of axioms with some justice, for it is a proposition of fact, founded upon an immediate experience, and it is not a necessary proposition, whose necessity is seen in the immediate agreement of ideas. On the contrary, there

is no one but God who sees how these two terms *I* and *existence* are connected, that is, why I exist. But if the axiom is taken more generally for an immediate or *non-provable* truth, it may be said that the proposition *I am* is an axiom, and in any case we may be assured that it is a *primitive truth* or *unum ex primis cognitis inter terminos complexos*, that is, that it is one of the first known statements, that which is understood in the natural order of our knowledge; for it is possible that a man may never have thought of forming expressly this proposition, which is yet innate in him.

§§ 8, 9. I had further added that in the natural order to say that a thing is what it is, is prior to saying that it is not another; for here it is not a question of the history of our discoveries, which is different in different men, but of the connection and natural order of truths, which is always the same. But your remark, namely, that what the child sees is only a fact, deserves still more reflection; for the experiences of the senses do not give absolutely certain truths (as you yourself observed, sir, not long ago), nor such as are free from all danger of illusion. For if it is permitted to make metaphysically possible fictions, sugar might be changed imperceptibly into a rod to punish a child if it has been naughty, just as water is changed into wine with us on Christmas Eve, if it has been well rectified [*morigené*]. But the pain (you will say) which the rod inflicts will never be the pleasure which the sugar gives. I reply that the child will think of making an express proposition concerning it as little as of remarking the axiom that it cannot be said truly that *what is, at the same time is not*, although it may very well perceive the difference between pleasure and pain, as well as the difference between perceiving and not perceiving.

§ 10. Thus you must not here oppose the axiom and the example as different truths in this respect, but regard the axiom as incorporated in the example and rendering the example true. It is quite another thing when the evidence is not remarked in the example itself and when the affirmation of the example is a consequence and not merely a *subsumption* of the universal proposition, as may happen also in respect to axioms.

CHAPTER IX.

Of our knowledge of existence.

§§ 2 and 3. [2. *A threefold knowledge of existence.* 3. *Our knowledge of our own existence is intuitive.*] I am fully in accord with all this. And I add that the immediate apperception of our existence and of our thoughts furnishes us the first truths *a posteriori* or of fact, that is, the *first experiences;* as identical propositions contain the first truths *a priori* or of reason, that is, the *first lights.* Both are incapable of being proved and may be called *immediate;* the former, because there is immediation between the understanding and its object, the latter, because there is immediation between the subject and predicate.

CHAPTER X.

Of our knowledge of the existence of a God.

§ 1. I do not wish to repeat what has been discussed between us concerning innate ideas and truths, among which I reckon the idea of God and the truth of his existence.

§§ 2–6. [2. *Man knows that he himself is.* 3. *He knows also that nothing cannot produce a being, therefore something is eternal.* 4. *That eternal being must be most powerful.* 5. *And most knowing.* 6. *And therefore God.*] I assure you, sir, with perfect sincerity, that I am extremely sorry to be obliged to say anything against this demonstration: but I do it in order to give you an opportunity to fill up the gap in it. It is principally in the passage where you conclude (§ 3) that something has existed from all eternity. I find ambiguity in it. If it means that *there has never been a time when nothing existed*, I agree to this; and it follows truly from the preceding propositions by a wholly mathematical sequence. For if there never had been anything, there would always have been nothing, nothing not being able to produce being; hence we ourselves would not be, which is contrary to the first truth of experience. But what follows shows first that in saying that something has existed from all eternity, you mean an eternal thing. Nevertheless it does not follow, in virtue of what you have advanced up to this time, that if there has always been something, it has always been a certain thing, that is, that there is an eternal being. For some opponents will say that I myself have

been produced by other things and these things again by others. Farther, if some admit eternal beings (as the Epicureans their atoms) they will not believe themselves thereby obliged to grant an eternal being which should be alone the source of all others. For even if they should admit that that which gives existence gives also the other qualities and powers of a thing, they will deny that a single thing gives existence to the others and they will even say that for each thing several others must concur. Thus we will not arrive in this way alone at one source of all powers. However it is very reasonable to conclude that there is one, and even that the universe is governed with wisdom. But if one believes matter susceptible of feeling, one may be disposed to believe that it is not impossible that it may produce it. At least it will be difficult to bring forward a proof of it which should not show at the same time that matter is altogether incapable of it; and supposing that our thought comes from a thinking being, can it be taken for granted without having a bias for the demonstration, that this must be God?

§ 7. [*Our idea of a most perfect being, not the sole proof of a God*]. Although I hold to innate ideas and particularly to that of God, I do not believe that the demonstrations of the Cartesians drawn from the idea of God, are perfect. . . . . This [ontological argument] is not a paralogism, but it is an imperfect demonstration which supposes something which has still to be proved in order to render it mathematically evident. This is, that it is tacitly supposed that this idea of the all-great or all-perfect being is possible and implies no contradiction. . . . . The other argument of M. Descartes which undertakes to prove the existence of God because his idea is in our soul and it must have come from the original, is still less conclusive. For, in the first place, this argument has this defect in common with the preceding, that it supposes that there is in us such an idea, that is, that God is possible. . . . . And, secondly, this same argument does not sufficiently prove that the idea of God, if we have it, must come from the original. But I do not wish to delay here at present. You will say to me, sir, that recognizing in us the innate idea of God I ought not to say that we may question whether there is one. But I permit this doubt only in relation to a strict demonstration, founded upon the idea alone. For one is sufficiently assured otherwise of the idea and of the existence of God. And you will remember that I have

shown how ideas are in us, not always in such a way that we are conscious of them, but always so that we may draw them from our own depths and render them perceptible. And this is also what I believe of the idea of God, whose possibility and existence I hold to be demonstrated in more than one way. And the *Preëstablished Harmony* itself furnishes a new and incontestable means of doing so. I believe besides that almost all the means which have been employed to prove the existence of God are good, and might serve, if they were perfected; and I am not at all of the opinion that the one which is drawn from the order of things is to be neglected.

§§ 9, 10. [9. *Two sorts of beings, cogitative and incogitative.* 10. *Incogitative being cannot produce a cogitative*]. I think the present reasoning the strongest in the world, and not only exact but also profound and worthy of its author. I am entirely of his opinion that there is no combination and modification of parts of matter, however small they may be, which can produce perception; all the more that the gross parts could not give it (as is clearly evident), and that everything in the small parts is proportional to what may take place in the large ones. It is another important remark upon matter, which the author here makes, that it must not be taken for a thing single in number, or (as I am accustomed to say) for a true and perfect *monad* or *unity*, since it is but a *mass* of an infinite number of beings. Here this excellent author needed but one more step to reach my system. For in fact I give perception to all these infinite beings, each one of which is as an animal, endowed with a soul (or with some analogous active principle, which forms its true unity) together with what is necessary to this being in order to be passive, and endowed with an organic body. Now these beings have received their nature, active and passive (that is, what they possess of immaterial and material), from a general and supreme cause, because otherwise, as the author well remarks, being independent each of the others, they could never produce that *order*, that *harmony*, that *beauty*, which we observe in nature. But this argument, which appears to be only of moral certainty, is brought to a necessity altogether metaphysical by the *new kind of harmony* which I have introduced, which is the *preëstablished harmony*. For each one of these souls expressing in its manner that which takes place outside and not being able to have any influence on other particular beings, or rather, being obliged to draw this ex-

pression from the depths of its own nature, each one must necessarily have received this nature (or this internal reason of the expressions of what is external) from a universal cause on which all these beings depend, and which causes one to be perfectly in accord and correspondent with another; a thing which is not possible without an infinite knowledge and power, and by an artifice great in respect especially to the spontaneous agreement of the mechanism with the actions of the rational soul. In regard to this, the illustrious author who made objections against it in his wonderful Dictionary, doubted whether it did not surpass all possible wisdom; saying that the wisdom of God did not appear to him too great for such an effect, and he at least recognized that never had the feeble conceptions which we are able to have of the divine perfection, been so set in relief.

CHAPTER XI.

Of our knowledge of the existence of other things.

§§ 1–10. [*It is to be had only by sensation, etc.*] I have already remarked in our preceding conversations that the truth of sensible things is proved by their *connection*, which depends on the intellectual truths founded in reason, and on the constant observations in sensible things themselves, even when the reasons do not appear. And as these reasons and observations give us the means of judging of the future by relation to our interests, and as success answers to our rational judgment, we could not ask nor even have a greater certainty concerning these objects. We can account also even for dreams and for their lack of connection with other phenomena. Nevertheless I believe that the appellation of knowledge and of certainty might be extended beyond actual sensations, since clearness and manifestness extend beyond, which I consider as a kind of certainty: and it would undoubtedly be folly to seriously doubt whether there are men in the world when we do not see any. *To doubt seriously* is to doubt in relation to practice, and *certainty* might be taken for a knowledge of truth of which one cannot doubt in relation to practice without madness: and sometimes it is taken still more generally and applied to cases where we cannot doubt without deserving to be greatly blamed. But *manifestness* would be a luminous certainty, that is to say, where we do not doubt on account of the connection which we see between

ideas. According to this definition of certainty, we are certain that Constantinople is in the world, that Constantine and Alexander the Great and Julius Cæsar have lived. It is true that some peasant of Ardennes might with reason doubt of these for want of information; but a man of letters and of the world could not do so without a great derangement of mind.

§ 11. [*Past existence known by memory.*] It has already been remarked that our memory sometimes deceives us. And we believe it or not according as it is more or less vivid and more or less connected with the things which we know. And even when we are assured of the principal fact we may often question the circumstances.

§§ 13, 14. [13. *Particular propositions concerning existence are knowable.* 14. *And general propositions concerning abstract ideas.*] Your division appears to amount to mine, of *propositions of fact* and *propositions of reason.* Propositions of fact also may become general in a way, but it is by induction or observation; so that it is only a multitude of similar facts, as when it is observed that all quicksilver is evaporated by the force of fire; and this is not a perfect generalization because we do not see its necessity. General propositions of reason are necessary, although the reason also furnishes some which are not absolutely general and are only probable, as, for example, when we presume that an idea is possible until the contrary is discovered by a more exact research. There are, finally, *mixed propositions* which are drawn from premises, some of which come from facts and observations, and others are necessary propositions: and such are a number of geographical and astronomical conclusions concerning the globe of the earth and the course of the stars, which spring from the combination of the observations of travelers and astronomers with the theorems of geometry and arithmetic. But as, according to the usage of logicians, *the conclusion follows the weakest of the premises* and cannot have more certainty than they, these mixed propositions have only the certainty and universality which belong to the observations. As regards *eternal truths*, it must be observed that at bottom they are all conditional and say in effect, such a thing posited, such another thing is. For example, in saying, *every figure which has three sides will also have three angles*, I do nothing but suppose that if there is a figure with three sides, *this same figure* will have three angles. . . .

The scholastics have disputed hotly *de constantia subjecti*, as they called it, that is, how the proposition made upon a subject can have a real truth if this subject does not exist. It is that the truth is only conditional and says that in case the subject ever exists, it will be found such. But it will be asked further, in what is this connection founded, since there is in it reality which does not deceive? The reply will be that it is in the connection of ideas. But in answer it will be asked, where would these ideas be if no mind existed and then what would become of the real foundation of this certainty of the eternal truths? This leads us finally to the ultimate ground of truths, namely, to that *Supreme and Universal Mind*, which cannot fail to exist, whose understanding, to speak truly, is the region of eternal truths, as St. Augustine has recognized and expresses in a sufficiently vivid way. And in order that it be not thought that it is unnecessary to resort to this, we must consider that these necessary truths contain the determining reason and the regulative principle of even existences, and, in a word, the laws of the universe. Thus these necessary truths, being anterior to the existences of contingent beings, it must be that they are founded in the existence of a necessary substance. Here it is that I find the original of the ideas and truths which are engraved in our souls, not in the form of propositions, but as the sources from which applications and occasions will cause actual enunciations to arise.

CHAPTER XII.

Of the improvement of our knowledge.

§§ 4–6. [*Dangerous to build upon precarious principles. But to compare clear complete ideas under steady names.*] I am surprised, sir, that you turn against maxims, that is, against evident principles, that which can and must be said against the principles supposed *gratis*. When one demands *praecognita* in the sciences, or anterior knowledges, which serve to ground science, he demands *known principles* and not arbitrary positions, the truth of which is not known; and even Aristotle understands that the inferior and subaltern sciences borrow their principles from other higher sciences where they have been demonstrated, except the first of the sciences, which we call metaphysics, which, according to him, asks nothing from the others and furnishes them the principles of which

they have need; and when he says δεῖ πιστεύειν τὸν μανθάνοντα, the apprentice must believe his master, his opinion is that he must do it only while waiting, while he is not yet instructed in the higher sciences, so that it is only provisionally. Thus one is very far from receiving *gratuitous principles*. To this must be added, that even principles whose certainty is not complete may have their use if we build upon them only by demonstration; for although all the conclusions in this case are only conditional and are valid solely on the supposition that this principle is true, nevertheless, this connection itself and these conditional enunciations would at least be demonstrated; so that it were much to be desired that we had many books written in this way, where there would be no danger of error, the reader or disciple being warned of the condition. And practice will not be regulated by these conclusions except as the supposition shall be found verified otherwise. This method also serves very often itself to verify suppositions or hypotheses, when many conclusions arise from them, the truth of which is known otherwise, and sometimes this gives a perfect proof sufficient to demonstrate the truth of the hypothesis.

§ 13. [*The true use of hypotheses.*] The art of discovering the causes of phenomena, or true hypotheses, is like the art of deciphering, where an ingenious conjecture often shortens the road very much. Lord Bacon began to put the art of experimenting into precepts, and Sir Robert Boyle had a great talent for practising it. But if the art of employing experiences and of drawing consequences therefrom is not joined to it, we shall never with the utmost cost attain to what a man of great penetration might discover in the first place. Descartes, who was assuredly such, has made a similar remark, in one of his letters, in regard to the method of the Chancellor of England; and Spinoza (whom I do not hesitate to quote when he says something good), in one of his letters to the late M. Oldenbourg, Secretary of the Royal Society of England, printed among the posthumous works of this subtle Jew, makes a like reflection concerning a work by Mr. Boyle, who, to speak the truth, stops a little too much to draw from a number of fine experiences no other conclusion than this which he might take for a principle, namely, that everything takes place in nature mechanically; a principle which can be rendered certain by reason alone and never by experiences however numerous they may be.

CONTENTS OF NOTES.

Page.

1. Life of Leibnitz, ... 366
2. Leibnitz's Writings, ... 367
3. Expositions and Criticisms of Leibnitz's Philosophy, . . 367

ARTICLE I.

4. Leibnitz and Descartes, ... 368
5. Literature on Descartes and his Philosophy, . . . 368
6. The Search for Final Causes (p. 1), ... 369
7. Philipp (p. 2), ... 370
8. The *Epicurus* of Laertius (p. 8), ... 370

ARTICLE II.

9. Relation of Leibnitz to Spinoza, ... 370
10. Literature on the Philosophy of Spinoza, ... 370
11. The Conception of *Contingent* (p. 22), ... 372
12. *Natura naturans* and *natura naturata* (p. 23), . . . 372

ARTICLE III.

13. The Quality of Terms (p. 26), ... 372
14. Descartes' Argument for proving the Existence of God (p. 29), 373
15. True and False Ideas (p. 30), ... 373
16. "Whatever is clearly and distinctly conceived is true" (p. 31), 373
17. Antoine Arnauld's *On the Art of Thinking Well* (p. 32), . . 374
18. "Whether we see all things in God" (p. 32), . . . 374
19. Malebranche and *The Search after Truth* (p. 33), . . . 374

ARTICLE IV.

20. The Law of Continuity, ... 374

ARTICLE V.

21. Statement of Personal Views on Metaphysics and Physics, . 374

ARTICLE VI.

22. Does the Essence of Body consist in Extension? . . . 375
23. The System of Occasional Causes (p. 44), ... 375

ARTICLE VII.

24. Descartes' *Principles of Philosophy*, ... 375
25. Truths of Fact and Truths of Reason (p. 48), . . . 375
26. The Source and Nature of Error (p. 49), ... 375
27. The Author of the *Philosophia Mosaica* (p. 62), . . . 375

ARTICLE VIII. Page.

28. Two Essays on Motion (p. 64), ... 376

ARTICLE IX.

29. Descartes' *Man* (p. 67), ... 376

ARTICLE X.

30. The Notion of Substance, ... 376
31. Mersenne (p. 69), ... 376

ARTICLE XI.

32. "One of the greatest theologians and philosophers of our time" (p. 71), ... 376
33. "To find real units" (p. 72), ... 376
34. Swammerdam, Malpighi, Leewenhoeck, Rigis. Hartsoeker (pp. 73–74), 376
35. The System of Preëstablished Harmony (pp. 77–78), . . 377

ARTICLE XII.

36. Objections to the Doctrine of Preëstablished Harmony, . . 377

ARTICLE XIII.

37. Answers to Objections to the Doctrine of Preëstablished Harmony, 377

ARTICLES XIV AND XV.

38. The Illustration of the Clocks, ... 377

ARTICLE XVI.

39. Leibnitz and Locke, ... 377
40. Literature on Locke, ... 378
41. The Function *della crusca* (p. 98), ... 378

ARTICLE XVII.

42. The Law of Sufficient Reason, ... 378

ARTICLE XVIII.

43. On the Consequences of Certain Passages in Descartes, . . 379

ARTICLE XIX.

44. On Nature in Itself, etc., ... 379
45. Aristotle's Definition of Motion (p. 113), ... 379
46. Imaging and Intellectual Conception (p. 116), . . . 379
47. The Principle of the "Identity of Indiscernibles" (pp. 122–3), . 379

ARTICLE XX.

48. Leibnitz's Preface to the *Codex Diplomaticus Juris Gentium* (p. 127), 379

ARTICLE XXI.

49. The Ontological Argument for the Being of God, . . . 382

ARTICLE XXII.

50. The Doctrine of a Universal Spirit, ... 383
51. Molinos, Angelus Silesius, and Weigel (p. 140), . . . 383

ARTICLE XXIII. Page.

52. Leibnitz on the Non-Sensuous Element in Knowledge (p. 149), . 383

ARTICLE XXIV.

53. Lady Masham, ... 384

ARTICLE XXV.

54. Proof of the Existence of God from the Doctrine of Preëstablished Harmony (p. 165), ... 384

ARTICLE XXVI.

55. Contingency and Necessity, ... 384
56. The Sevennese Prophets (p. 173), ... 384

ARTICLE XXVII.

57. "The Refutation of Spinoza by Leibnitz," 384
58. Malcuth in Malcuth (p. 183), ... 384

ARTICLE XXVIII.

59. Remarks on Locke's *Examination of Malebranche*, . . 385

ARTICLE XXIX.

60. Leibnitz on the Nature of the Soul, ... 385
61. The different Classes of Monads (p. 191), ... 385
62. Genii (p. 192), ... 386

ARTICLE XXX.

63. Leibnitz's *Théodicée*, ... 386
64. Leibnitz's Optimism, ... 387

ARTICLE XXXI.

65. Leibnitz's Rules for the Conduct of the Mind and the Increase of Knowledge, ... 387

ARTICLE XXXII.

66. The Principles of Nature and of Grace, ... 387

ARTICLE XXXIII.

67. The Monadology, ... 387
68. Analysis of the *Monadology*, ... 388

ARTICLE XXXIV.

69. Remond de Montmort, ... 389

ARTICLE XXXV.

70. Leibnitz's Correspondence with Clarke, ... 389

ARTICLE XXXVI.

71. The *Nouveaux Essais*, ... 389
72. Analysis of the Second Chapter of Bk. 1, of the *Nouveaux Essais*, 390

NOTES.

1. Life of Leibnitz.

No more interesting personage appears in the history of modern philosophy than Leibnitz. Frederick the Great said of him, "He represents in himself a whole academy;" and by almost universal consent he is admitted to have possessed the most comprehensive mind since Aristotle. He was on familiar terms with almost every prominent character, political, ecclesiastical, philosophical, scientific and literary, of his day, and he himself played a prominent part in each of these spheres. From him as a statesman we have a scheme for the unification of Germany, prepared for the Imperial Diet at Ratisbon; and a far-sighted plan for a French conquest of Egypt, by which the conquering armies of Louis XIV were to have been turned aside from Germany, and the Turks from Austria and Hungary; besides numerous schemes for reforming the currency and the laws of the German states and improving the condition of the people. As a theologian he has given us an essay *Against Atheism*, a *Defense of the Trinity*, numerous discussions on the arguments for the being of God, a great project for the reunion of the Protestant and Latin churches, an irenical *Systema Theologicum* (translated by Russell, 1858) written in the interests of this reunion project, and above all his great work *La Theodicée*. As a mathematician he contests with Sir Isaac Newton the honor of discovering the Calculus. As a historian he produced an elaborate work on the *Annals of the House of Brunswick*. To the science of Logic, among other contributions, he has given us the important doctrine of the Quality of Terms. As a physicist he was the first to give the correct formula for moving force, and in his *Protogäa* he became a pioneer in geological investigations. His *New Essays on the Human Understanding* place him along side of his great contemporary Locke as a psychologist. And as a speculative philosopher, or metaphysician, he was the first man of his age on the continent of Europe and the founder of modern German philosophy.

The standard biography of Leibnitz is: *Gottfried Wilhelm Freiherr von Leibnitz. Eine Biographie von Dr. G. E. Guhrauer. Zwei Bände*, Breslau, 1842. Guhrauer's two volume work was the basis of the *Life of Godfrey William von Liebnitz, by John M. Mackie, 12mo.*, Boston, 1845. In his preface Mackie writes: "I have added little, or nothing, to the German work; and have taken away from it nothing that could be appropriately introduced into a popular biography, or that might be considered as possessing any historical interest for readers without the confines of Germany." Excellent accounts of the life of Leibnitz are also found in Kuno Fischer's *Leibniz (Geschichte d. neuern Philosophie. Zweiter Band, dritte neubearbeitete Auflage, 1888), pp. 1–324, Leibnizens Leben u. Schriften:* and in the little work by Merz, *Leibniz*, in Blackwood's Philosophical Classics, 1884. Cf., also, E. Fleiderer, *Leibniz als Patriot, Staatsmann u. Bildungsträger*, Leipsic, 1870: and T. Kirchner's *Leibniz: sein Leben u. Denken*, Cöthen, 1877.

2. Leibnitz's Writings.

There is no complete edition of the writings of Leibnitz. For an account of the different issues of his works, consult Kuno Fischer's *Leibniz (Geschichte d. n. Philosophie, Zweiter Band*, Munich, 1888), pp. 307–19, and the preface to Merz's *Leibniz*.

The best edition of his *philosophical writings* is that of C. J. Gerhardt, *Die philosophischen Schriften von G. W. Leibniz*, 7 vols., Berlin, 1875–90. This, however, needs to be supplemented by Erdmann's *God. Guil. Leibnitii Opera Philosophica quae extant Latina, Gallica, Germanica Omnia*, Berlin, 1840, and by the theological writings and the correspondence with Wolff.

The best edition of his *mathematical works* is that of C. J. Gerhardt, forming the third series in the edition of Pertz, *Leibnizen's mathematische Schriften, herausgegeben von C. J. Gerhardt*, 7 vols., London and Berlin, 1850; Halle, 1855–63.

The best issue of his *historical and political writings* is that by Onno Klopp, *Die Werke von Leibniz, u. s. w.*, first series, 10 vols., Hanover, 1864–77. With this should be compared Foucher de Careil's *Oeuvres de Leibniz*, Paris, 1859–75, vols. III to VI.

The best edition of his *theological works* is that of Foucher de Careil, vols. I and II of his *Oeuvres de Leibniz*.

To the above should be added Guhrauer's *Leibniz's Deutsche Schriften*, 2 vols., Berlin, 1838-40; Foucher de Careil's *Lettres et Opuscules inédits de Leibniz*, Paris, 1854–57; and Gerhardt's *Briefwechsel zwischen Leibniz und Wolff*, Halle, 1860.

3. Expositions and Criticisms of Leibnitz' Philosophy.

Among the most important discussions of the Philosophy of Leibnitz, are the following:

In German:—Ldw. Feuerbach's *Darstellg., Entw. u. Krit. d. L.'schen Philosophie*, 2d ed., Leipsic, 1844.

A. Trendelenburg's essays on L. in his *Historische Beiträge*, vols. ii and iii, Berlin, 1855, 1867.

Hartenstein's *Ueber Locke's u. L.'s Lehre von d. Mensch. Verstand*, etc. (Several essays in his *Hist.-phil. Abhandlungen*), Leipsic, 1870.

T. Kirchner's *Leibniz's Psychologie*, Cöthen, 1876.

J. H. v. Kirchmann's *Erläuterungen zu L.'s kleineren philosophisch wichtigern Schriften*, Leipsic, 1879. Also *Erltrgn. zu Leibniz's Theodicée* by Kirchmann, and *Erläuterungen zu L.'s Neue Abhandlungen*, by Prof. Schaarschmidt. The same.

Kuno Fischer's *Leibniz (Geschte. d. n. Philosophie. Zweiter Band, dritte neubearbeitete Auflage)*, Munich, 1888.

In French:—Condillac's *Exposition et Refutation* (in his *Traité des Systemes.*)

Maine de Biran's *Exposition de la Phil. de Leibniz.* An English translation of this will be found in the *American Whig Review*, vol. IX, p. 575 ff.

Nourisson's *La Philosophie de Leibniz*, Paris, 1860.

Secretan's *La Philosophie de Leibniz*, Paris, 1840.

Nolan's *Éclaircissements* (in his valuable edition of the *Monadology*), Paris, 1887. Also his earlier work, *La Critique de Kant et la Metaphysique de L.*, Paris, 1875.

In English: — Samuel Clarke's *Letters to Leibnitz* (in his *Collection of Papers which Passed between L. and Dr. S. Clarke*), London, 1717.

J. T. Merz's *Leibniz* (in Blackwood's Phil. Series), Edinburgh, 1884.

J. Dewey's *Leibniz's New Essays concerning the Human Understanding: a Critical Exposition* (in Griggs's Philosoph. Classics), Chicago, 1888.

To these should be added the exposition by the eminent Swedish thinker, Boström, contained in the recent collected edition of his writings: and Cesca's *La Metafisica e la Teoria della Conoscenza del Leibniz.*

The student may profitably consult for further literature the last edition of Ueberweg's History of Philosophy, ed. by Prof. M. Heinze; and the *Archiv für Geschichte d. Philosophie*, edited by Prof. L. Stein, Bd. I ff., Berlin, 1887 f. Among the many magazine articles on Leibnitz, which will be found by consulting an index to periodical literature, are those by Prof. Fraser, on the *Life and Philosophy of Leibnitz* in the No. Brit. Review, vol. 5, (also published in F.'s *Essays in Philosophy*); Aubertin's *La Phil. de L. et la Science Contemporaine* in the *Revue des Deux Mondes*, vol. 92; and Brennecke's *L.'s Beweise für das Dasein Gottes* in the *Phil. Monatshefte*, 5.

The histories of philosophy containing the best accounts of Leibnitz's philosophy are those of Ueberweg, Erdmann, Bowen, and Zeller (*Deutsche Phil. seit Leibniz*, 1873).

ARTICLE I.

4. Leibnitz and Descartes.

Leibnitz while a mere boy at Leipsic began the study of Descartes' writings and they more than those of any other one philosopher determined his thinking. He had access when at Paris to the manuscripts left by Descartes and continued the study of his writings, especially those on mathematics. His own discovery of the Integral Calculus on Oct. 29, 1675, and of the Differential Calculus soon after, carried him far beyond the Cartesian mathematics, considered by the followers of Descartes as their master's most important work. This achievement not improbably led Leibnitz to free himself more and more from the influence of Descartes in metaphysics. After his removal to Hanover he took a more openly hostile attitude toward Descartes. His writings against Descartes and Cartesianism will be found in Gerhardt's edition, vol. iv, pp. 274–406. The most important of them are translated here in Articles I, VII, IX, XVIII, and XXI; cf. also Articles III, IV, VI, X, XI, XXIX and *passim*. His general attitude toward Cartesianism is well indicated by his remark that "Cartesianism is to be regarded as the ante-chamber of the truth," and by the remarks found in the third of the extracts forming Article I.

5. Literature on the Philosophy of Descartes.

For the study of the philosophy of Descartes the following additional works will be found of service:

Spinoza's *Renati Descartes Principiorum Philosophiæ pars I et II more geometrico demonstratæ.*

Maine de Biran's *Commentaire sur les Meditations de Descartes* (found in Bertrand's *Science et Psychologie, œuvres inedits de De Biran*, pp. 73–125), Paris, 1887.

Cousin's *Fragments Philosophiques*, vol. ii, Paris, 1838, and *Fragments de Phil. Cartesienne*, Paris, 1845.

Bouillier's *Histoire de la Philosophie Cartesienne*, Paris, 1854.

Bordas-Demoulin's *Le Cartesianisme*, 2d ed., Paris, 1874.

Louis Liard's *Descartes*, Alcan, Paris, 1882.

V. Brochard's editions, with notes, of *Les Principes de Phil., pt. 1*, and of the *Discours de la Methode.* The same.

Henri Joly's editions of the same pieces, Delalan Freres, Paris.

Fonsegive's *Les Pretendues Contradictions de Descartes* (in the *Revue Philosophique*, 1883, pp. 511–532, and 642–656).

Schaarschmidt's *Descartes u. Spinoza, urkundl. Darstellg. d. Philos. Beider*, Bonn, 1850.

Löwe's *Das Spec. Syst. des Rene Descartes, seine Vorzüge u. Mängel*, Vienna, 1855.

Kuno Fischer's *Descartes u. seine Schule*, 3 auf. (the first part, treating of Descartes and Malebranche, has been translated into English by Prof. Gordy and published by the Scribners of New York), Munich, 1878.

Thilo's *Die Religionsphilosophie des Descartes* (in *Ztschr. f. ex. Phil.*, III, 121–182), 1862.

Heinze's *Die Sittenlehre des Descartes*, Leipsic, 1872.

Glogau's *Darlg. u. Krit. d. Grundgedankens d. Cartesianisch. Metaphysik* (in *Z. f. Phil. u. phil. Kr.*), 1878.

Koch's *Die Psychologie Descartes'*, Munich, 1882.

Natorp's *Descartes' Erkenntnisstheorie*, Marburg, 1882.

Cunningham's *Descartes and English Speculation*, London, 1875.

Mahaffy's *Descartes* (in Blackwood's Series), Edinburgh, 1880.

H. Sedgwick's *The Fundamental Doctrines of Descartes* (in *Mind*, vol. 7, pp. 435 f.).

Rhodes' *A New View of the Phil. of Descartes* (in the *Jour. of Spec. Phil.*, vol. 17, pp. 225 f.).

Consult also the histories of philosophy, especially those of Hegel, Ueberweg, Bowen, and Erdmann.

The best and only complete edition of Descartes' own writings is that by Cousin, 11 vols., Paris, 1824–26. Of the most important philosophical works, there is a French edition in one volume edited by Jules Simon ; a German translation in one volume by von Kirchmann ; and an English translation, also in one volume, by Prof. Veitch (7 ed., Blackwood, Edinburgh).

6. The Search for Final Causes (Page 1).

It may be well to compare the views of Leibnitz on this important subject with those of his philosophical predecessors, Bacon, Descartes, and Spinoza. For Bacon's views consult his *Novum Organum*, I, 48, 65 ; II, 2 ; *Advan. of Learning*, bk. 2 ; *De Augmentis Sci.*, bk. 3, chs. 4 and 5 ; compare also Prof.

Fowler's note on the subject in his edition of the *Novum Organum*, and Kuno Fischer's remarks in his *Franz Baco*, pp. 143–146. For Descartes' views consult his *Meditations*, IV, and *Principles of Philosophy*, I, 28; also Kuno Fischer's remarks in his *Descartes* (*Hist. of Mod. Phil.*, Eng. trans., vol. I, pp. 364 f.). For Spinoza's views consult his *Ethics*, pt. I, props. 32–34 and the appendix. For Leibnitz's own views, see Article I [illegible]. VII, § 28, IX, XVIII, XIX, XXVII. On the whole subject, see Janet's *[illegible]al Causes*.

7. Philipp (Page 2).

A native of Saxony, not improbably also of Leipsic, who was a councillor and representative of the Saxon government at Hamburg from 1675–1682. In 1682 he became librarian of the electoral library at Dresden and died shortly afterward. He was much interested in the sciences.

8. The *Epicurus* of Laertius (Page 8).

This refers to the article on Epicurus by Diogenes Laertius in his *Lives of the Philosophers*, in ten books. It contains some original letters of Epicurus and comprises a pretty satisfactory epitome of the Epicurean doctrines.

ARTICLE II.

9. Relation of Leibnitz to Spinoza.

The relation of Leibnitz philosophically to Spinoza has long been a subject of dispute. Was Leibnitz ever a Spinozist? How much has he been influenced by Spinoza? These and other like questions have given rise to numerous essays. The weight of evidence seems to show that he never was a real follower of Spinoza but that nevertheless he at first had strong leanings toward the philosophy of the great Jew (cf. p. 309). Those who wish to pursue the subject will find, in addition to the earlier discussions of the question by Trendelenburg, Erdmann, Guhrauer and De Careil, the whole subject discussed anew by Prof. Stein in his *Leibniz in seinem Verhältniss zu Spinoza auf Grundlage unedirten Materials entwicklungsgeschichtlich dargestellt* (in the Sitzungsberichte der Königl. preuss. Akademie XXV, 1888, p. 615 ff.). Two recently discovered letters of Leibnitz concerning Spinoza, which bear upon the question, will be found in the *Archiv für Geschichte d. Philosophie*, Band 3, Heft 1, 1889.

Between the years 1676 and 1680 Leibnitz carefully studied the writings of Spinoza. He received a copy of the *Opera posthuma*, containing the *Ethics*, almost immediately after it appeared in January, 1678, and several manuscripts are extant in which he has given an extended judgment on this the masterpiece of Spinoza. One of these, together with two minor pieces bearing on Spinoza, Gerhardt has given to the public in his first volume. This is here translated and should be read in connection with Art. XXVII (on which see note 57).

10. Literature on Spinoza's Philosophy.

The following references may be of use in the study of Spinoza:

(1.) *Collected editions of Spinoza's works.* The best and now standard edition is that of Van Vloten and Land, The Hague, 1882 f. This has supplanted Bruder's ed., 3 vols., Leipsic, 1843–6. A cheap edition is that of Ginsberg, 4 vols., Heidelberg, 1875 f.

(2.) *Translations.* There are two in German: *Spinoza's Sämmtliche Werke übers. von B. Auerbach*, last ed. in 2 vols., Stuttgart, 1872; and *Spinoza's Sämmtliche Werke übers. von Von Kirchmann u. Schaarschmidt*, 2 vols., Berlin. The standard translation in French is the *Oeuvres de Spinoza, trad. par E. Saisset*, last ed. 3 vols., Charpentier, Paris, 1872. Until recently none of the works of Spinoza was accessible in English. Now we have the following: the *Tractatus de Intellectus Emendatione*, translated by Elwes, 1887; the *Tractatus Theologico-Politicus*, translated anonymously in 1689, by Willis in 1862, by Elwes in 1887; the *Tractatus Politicus*, translated by Maccall in 1854, by Elwes in 1887; the *Epistolae* (in part) by Willis in 1870, by Elwes in 1887; the *Ethica*, translated by Willis, London, 1870; by D. D. S., New York, 1876; by Prof. H. Smith, Cincinnati, 1886; by White, London, 1887; by Elwes, London, 1887. The translations of White and Elwes are the best.

(3.) *Expositions and Criticisms of Spinoza:*

In German: Trendelenburg's *Ueber Spinoza's Grundgedanken* (in his *Hist. Beiträge*).

Erdmann's *Die Grundbegriffe des Spinozismus* (in his *Verm. Aufs.*).

Schaarschmidt's *Descartes u. Spinoza, urkundl. Darstellg. d. Philos. Beider*, Bonn, 1850.

Busolt's *Die Grundzüge d. Erkenntnisstheorie u. Metaphysik Spinozas*, Berlin, 1875.

Camerer's *Die Lehre Spinozas*, Stuttgart, 1877.

Von Kirchmann's *Erläuterungen zu Spinoza's Werke* (in his *Philosophische Bibliothek*).

Kuno Fischer's *Spinoza* (*Gesch. d. n. Phil.*, Erster Bd., Zweiter Theil, dritte Auf.), Munich, 1880.

In addition to these, Jacobi's *Ueber die Lehre Spinoza's*, Herder's *Gott, einige Gespräche über Spinoza's System*, and Auerbach's *Spinoza, a novel*, may be noticed.

In French:—Fenelon's *Refutation de Spinoza* (in his *Traité de l'Existence de Dieu*, pt. 2, ch. III; the Eng. trans. contains also criticisms by the Jesuit Father Toumemine).

Cousin's *Rapports du Cartesianisme et du Spinozisme* (in his *Fragments de Phil. Cartesienne*).

De Careil's *Leibniz, Descartes, et Spinoza*, Paris, 1862.

E. Saisset's *Introduction* (to his translation of the *Oeuvres de Spinoza*, Charpentier, Paris), also his *Modern Pantheism* (Eng. trans.), pp. 92–157.

Janet's *Spinoza et le Spinozisme* (in the *Revue des Deux Mondes*, vol. 70) and his *French Thought and Spinoza* (in the *Contemp. Review*, May, 1877).

In English:—Pollock's *Spinoza: his Life and Philosophy*, London, 1880.

Martineau's *Spinoza: a Study*, London, 1882, and his *Types of Ethical Theory*, vol. i, pp. 246–393.

John Caird's *Spinoza* (in Blackwood's Series), Edinburgh, 1888.

Prof. Knight's *Spinoza: Four Essays* (by Fischer, Land, Van Vloten, Renan), London, 1882.

Flint's *Anti-Theistic Theories*, pp. 358–375 and 547–552.

In addition to these and to the early English notices of Spinoza mentioned by Pollock (p. xxxiii), the following may be added: Howe's *Living Temple*, pt. II, ch. 1; Froude's *Spinoza* (in his *Short Studies on Great Subjects*, vol. i); Lewes' *Spinoza and his Philosophy* (in *Westminster Review*, No. 77); M. Arnold's *Spinoza* (in his *Essays in Criticism*); Prof. G. S. Morris' *Life and Teachings of Spinoza* (in the *Jour. of Spec. Phil.*, vol. 11); Dewey's *The Pantheism of Spinoza* (in the same, vol. 16); and the sections on Spinoza in the histories of philosophy by Ueberweg, Erdmann, and Bowen. Consult also for very recent literature the *Archiv für Geschichte der Philosophie*.

11.—The Conception of Contingent (Page 22, prop. 29).

Cf. Articles XXVI, XXXV (p. 254f.) and XXXVI (p. 337), for fuller statements of Leibnitz's view of *contingency* and *necessity*.

12.—Natura naturans and Natura Naturata (Page 23, prop. 31).

"In the most general meaning of the words, Natura Naturans and Natura Naturata may be described as related to each other thus: Natura Naturata is the actual condition of a given object or quality, or of the aggregate of all objects and qualities, the Universe, at any given time; Natura Naturans is the immanent cause of this condition, or aggregate of conditions, and is regarded as producing it by a continuous process. Thus when we say 'How wonderfully Nature works,' we are speaking of 'Natura Naturans'; when we say 'How beautiful is Nature,' we are speaking of Natura Naturata. Hence, Natura Naturans is related to Natura Naturata as cause to effect. Or, again, we may say that Natura Naturans is the active or dynamical, Natura Naturata the passive or statical aspect of nature."—Fowler's *Bacon's Novum Organum*, II, 1, *note* 4.

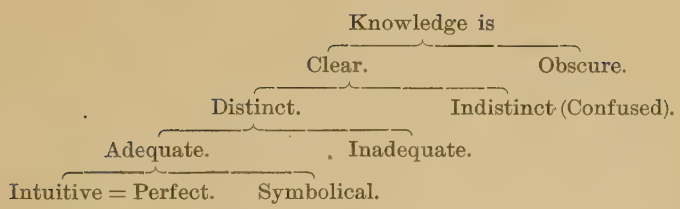
ARTICLE III.

13.—The Quality of Terms (Page 26).

Cf. *Discours de Metaphysique*, § 24; *Nouv. Essais*, II, c. 29f.; *Art.* XXII, p. 150. The distinctions here made by Leibnitz constitute what is known as the logical doctrine of the *quality of terms* and will be found explained in all the ordinary text-books on logic. The question is, What constitutes clear, distinct and perfect knowledge? The views of Leibnitz's predecessors should be noticed. See Descartes' *Discourse on Method*, pt. 4, and *Principles of Philosophy*, I, 45, 46; Spinoza's *Ethics*, I, axiom 6 and note to prop. 29, and II, deff 2, 3, and props. 33-43, and *De Emend. Intel.* (pp. 23 f. in Elwes' trans.); Arnauld's *Port Royal Logic*, pp. 61, 62, in Baynes' trans. Consult also Locke's views (published subsequently to this essay) in his *Essay*, bk. II, ch. 29, §§ 2, 4, and ch. 31, § 1. For the doctrine as presented by modern logicians and its value, see Bowen's *Logic*, Davis' *Theory of Thought*, Ueberweg's *Logik* (latest ed., by J. Bona Mayer).

Leibnitz's other statements of the doctrine should be compared with those in this essay.

A brief statement of the doctrine is as follows:



The whole process consists in the grasping of more and more attributes.

Clear knowledge is only of the constituted whole. I have clear knowledge of a thing when I can distinguish it as a whole from other things. The knowledge which common people have of Value, Price, Final Cause, is not clear but obscure. The knowledge which a patient has of his ailment, which an artist has of a defect in a picture, which a witness has of a prisoner, is usually *clear* but not distinct.

Distinct knowledge is of the constituent parts. My knowledge of a thing is distinct when I not only clearly distinguish it from other things but distinguish its different attributes or characteristics. When I define an elephant as an animal that drinks through its nostrils, my knowledge is distinct although quite *inadequate*. Our knowledge of simple ideas is at once distinct and adequate.

Adequate knowledge is of the essential attributes. Knowledge may be said to be adequate when there is exhaustive knowledge of the attributes. Such knowledge is possible to God alone. Again, it may be said to be adequate when it suffices for the object in view. In this sense a housewife's knowledge of fish when she goes to the fish-market may be called adequate. This is practical adequacy and is scientifically worthless. Logical adequacy is knowledge of the *essential* attributes, that is, those which (*a*) contain the common and persistent basis for a multitude of others, and on which (*b*) the subsistence of the object, its worth and its meaning depend.

Intuitive knowledge is possessed when we grasp in one act of consciousness all the qualities or the essential qualities. Such knowledge, which is at once also *clear*, *distinct* and *adequate* is PERFECT KNOWLEDGE. Very little of our knowledge is such; most of it may be adequate without being intuitive, and hence is but symbolical.

14. ARGUMENT OF DESCARTES FOR PROVING THE EXISTENCE OF GOD (Page 29). Cf. note 49.

15. TRUE AND FALSE IDEAS (Page 30).

Cf. Spinoza's *De Emend. Intel.; Ethics*, I, axiom 6, and II, props. 33–43; Leibnitz's *Notes on Spinoza's Ethics;* Locke's *Essay*, bk. II, ch. 32; Arnauld's *Port Royal Logic.*

16. "WHATSOEVER IS CLEARLY AND DISTINCTLY CONCEIVED IS TRUE" (Page 31).

This is Descartes' famous *criterion of truth.* Cf. his *Discourse on Method*, pt. IV; *Meditations*, III; *Principles*, I, 60; and cf. Art. VII, p. 54.

17. Antoine Arnauld's "On the Art of Thinking Well" (Page 32).

This is the celebrated *Port Royal Logic*, the best specimen of the logic of the Cartesian school, written by Arnauld assisted by Nicole. It has twice been translated into English. The last translation, a most admirable one, is that by Prof. Baynes, who has added in an appendix an excellent translation of this essay by Leibnitz. Arnauld's masterpiece is his work on *True and False Ideas*, 1683, in which he attacks, and in many points anticipates Reid's objections to, the theory of representative ideas. He became an intimate friend of Leibnitz and carried on with him a long correspondence on theological and philosophical topics. For this, see Janet's and Gerhardt's editions of Leibnitz's works.

18. The Question "Whether we See all things in God" (Page 32).

This refers to the famous doctrine of Malebranche. See next note.

19. Malebranche and "The Search after Truth" (Page 33).

Malebranche has been called by Cousin the French Plato. Next to Descartes he was the most eminent French metaphysician of the seventeenth century. His greatest work is his *De la Recherche de la Verité*, 1672. Of this there are two English translations, the second by Taylor, London, 1712. The famous doctrine that *we see all things in God* is expounded in the third book in a brief chapter but in a clear manner. There is a convenient edition in four small volumes of the most important works of Malebranche, edited, with an introduction, by Jules Simon. Leibnitz's correspondence with Malebranche will be found in Gerhardt, vol. I. On his philosophy, see the first volume of Kuno Fischer's *Hist. of Mod. Phil.*; Ollé-Laprune's *La Philosophie de Malebranche*; Locke's *Examination of the Doctrine of Malebranche*; Leibnitz's criticisms in Arts. XXVIII and XXXIV, and in his *Examen des Principes du Malebranche*, in Erdmann, LXXXV.

ARTICLE IV.

20. The Law of Continuity.

This law of continuity is one of the cardinal points in the system of Leibnitz. For other statements of it and remarks on it by him, see Arts. V, VII (p. 61), XXXVI (p. 295); the *Theodicée*, III, § 348; and *Nouv. Ess.* III, c. 6, § 12; IV, c. 16, § 12.

ARTICLE V.

21. Statement of Personal Views on Metaphysics and Physics.

This letter to Arnauld is of especial interest as it gives an epitome of Leibnitz's system and mentions the monad doctrine in its essential characteristics. Yet the letter of Foucher (Art. XII) shows that Leibnitz, *as early as 1685*, had reached in some of its main features his later published system; and the *Discours de Metaphysique* (the table of contents of which Leibnitz sent to Arnauld, in his letter to Prince Ernest of Hesse, of February 11, 1686), published first by Grotefond and now again by Gerhardt, vol. 4, verifies this. Cf. §§ 8, 9, 12, 13, 15, 18, 19, 24, 27, 33, 34 of it.

ARTICLE VI.

22. Does the Essence of Body consist in Extension (Page 41).

This is the doctrine of Descartes and of Malebranche. Cf. Descartes, *Princip. of Phil.*, II, 4, "that the nature of body consists not in weight, hardness, color, and the like, but in extension alone;" and Leibnitz's note on it, p. 59. After being led by his mathematical and physical studies to reject Descartes' *Laws of Motion*, Leibnitz was led on to a thorough investigation of the nature of body, and on this he separates himself from Descartes. Doubtless his youthful studies on the *Principle of Individuation*, as well as his later studies in dynamics, contributed much to convince him that "some higher or metaphysical notion, to wit: that of *action*, *power*, *force* is needed." These pieces in Art. VI—two letters to the editor of the *Journ. des Sav.*, June, 1691, and Jan., 1693—are important in that they throw light on the process by which Leibnitz came to reach the corner-stone of his system—the notion of *Substance*. Cf. also Art. X and Art. XI, pp. 71–72.

23. The System of Occasional Causes (Page 44).

This is the system propounded by Geulincx and advocated by Malebranche, to explain the relation between the body and soul. See Leibnitz's opinion of the doctrine, Art. XIX, p. 125, and cf. Kuno Fischer's *Geschichte d. n. Phil.*, vol. I.

ARTICLE VII.

24. Descartes' *Principles of Philosophy.*

This work was written by Descartes in 1644, for the Princess Elisabeth, the sister of Leibnitz's friend, the Grand Duchess Sophia, and the aunt of Queen Sophia Charlotte for whom Leibnitz wrote the *Theodicée*. Prof. Veitch has translated the First Part of the *Principles* along with selections from the Second, Third and Fourth Parts. Parts I and II are entitled respectively *Of the Principles of Human Knowledge* and *Of the Principles of Material Things*, and give an epitome of Descartes' philosophy. Cf. Spinoza's *Renati Descartes Principiorum Philosophiae pars I et II more geometrico demonstratae;* Kirchmann's *Erläuterungen zu Spinoza's Descartes' Principien;* also Joly's and Brochard's editions, with notes, of Descartes' *Les Principes de Philosophie.*

25. Truths of Fact and Truths of Reason (Page 48).

Cf. Articles XXXIII, §§ 33 and 30–38; XXXVI (p. 348 and p. 355).

26. The Source and Nature of Error (Page 52).

Cf. Descartes, *Meditations*, IV, *Principles of Phil.*, I, §§ 29, 30, 33, 35, 42, 43; Bacon, *Novum Organum*, I, 38–68 (and Fowler's notes; also Kuno Fischer's *Franz Baco u. seine Nachfolger*, last ed., pp. 159–173). For Leibnitz's views see in this Art. VII his notes on articles 5, 6, 13 and especially on 31 and 35, and *Nouv. Ess.*, IV c. 20.

27. The author of the *Philosophia Mosaica* (Page 62).

Robert Fludd (1574–1637), an English physician and mystical philosopher. His *Phil. Mosaica* appeared in 1638 at Gouda.

ARTICLE VIII.

28. Two Essays on Motion (Page 64).

These were written while Leibnitz was at Mayence and dedicated, the one to the Royal Society of London, and the other to the Royal Academy at Paris. The subject of this Art., *Indivisibilia*, was one which engaged the thought of Leibnitz a great deal.

ARTICLE IX.

29. Descartes' *Man* (Page 67).

I. e., his work entitled *L'Homme*, published after his death, Paris, 1664.

ARTICLE X.

30. The Notion of Substance.

If there is one conception which may be called central in the philosophy of Leibnitz it is the notion of *substance*. If, therefore, his system is to be rightly understood, great attention must be given to his answer to the question, "What is substance?" Cf. Articles XI, §§ 2, 3, XIX, XXV, XXXII, XXXIII, and *Nouv. Ess.*, II, c. 13, § 19, and c. 23, § 2. See also Fischer's *Leibniz*, pp. 325 f.

31. Mersenne (Page 69).

An intimate friend of Descartes and former fellow-student of his at La Flêche. He superintended the publication of some of Descartes writings. The writing of Descartes alluded to in this sentence is probably the *Answers to Objections* to his *Meditations*, especially the answer to the Second Objection.

ARTICLE XI.

32. "One of the greatest theologians and philosophers of our time" (Page 71).

He alludes to Arnauld (cf. note 17).

33. "To find real units" (Page 72).

Gerhardt's text here reads: "Therefore, in order to find these real unities, I was compelled to have recourse to a *real or animated point*, so to speak, or to a substantial atom, which must embrace something formal or active in order to constitute a complete being."

34. Swammerdam, Malpighi, Leewenhoeck, Rigis, Hartsoeker (Pages 73–74).

Swammerdam (1637–1680), a Dutch anatomist, especially celebrated for his investigations in entomology; his *General History of Insects* (Utrecht, 1669), and other kindred works contributing to the founding of the science

Malpighi (1628–1694), of Bologna, founder of microscopic anatomy.

Leewenhoeck (1632–1723), an eminent Dutch microscopist, discoverer of the capillary circulation of the blood.

Rigis or *Regius* (1632–1701), a celebrated Cartesian philosopher who interpreted Descartes in the manner of an empiricist.

Hartsoeker (1632–1925), a Dutch mathematician and physicist.

35. The system of Pre-established Harmony (Pages 77–78).

After the publication of this *New System* Leibnitz was fond of calling himself "Author of the System of Pre-established Harmony," and it is as such that he is popularly known. For other statements of it by him, see Articles XIII, XIV, XV, XXIV, XXXII, XXXIII., etc.

ARTICLE XII.

36. Objections to the Doctrine of Pre-established Harmony.

The objections urged by Foucher in this Article are unimportant compared with those presented by others of Leibnitz's contemporaries. See especially the objections of Bayle in his *Dictionary*, Art. *Rorarius;* Lami in his *Connaissance de soi-même*, Paris, 1699; and Clarke in his *Answer to Leibnitz's 5th Letter.*

ARTICLE XIII.

37. Answers to Objections to the Pre-established Harmony.

For Leibnitz's answers to the more serious objections of Bayle, Lami, and Clarke, see Gerhardt's ed., vol. 4, pp. 517–596, and Erdmann's ed., pp. 746–788.

ARTICLES XIV AND XV.

38. The Illustration of the Clocks.

This illustration is not original with Leibnitz.

ARTICLE XVI.

39. Leibnitz and Locke.

Leibnitz's attention was first called to Locke by the epitome of his *Essay* published by LeClerc in the *Bibliotheque Universelle*, 1688. On the appearance in 1690 of the *Essay* itself he wrote these observations (Art. XVI) which were sent through Burnett to Locke. Locke gives his opinion of them in a letter to Molyneux, April 10, 1697: "I must confess to you, that Mr. Leibnitz's great name had raised in me an expectation which the sight of his paper did not answer, nor that discourse of his in the *Acta Eruditorum*, which he quotes, and I have since read, and had just the same thoughts of it, when I read it, as I find you have. From whence I only draw this inference, that even great parts will not master any subject without great thinking, and even the largest minds have but narrow swallows." When Leibnitz heard that Locke did not understand him, he wrote two pieces, *Echantillon de Reflexions sur le I. Livre de l'Essay de l'Entendement de l'Homme* and *Echantillon de Reflexions sur le II. Livre*, which were also sent through Burnett to Locke, but these failed to call forth any direct acknowledgment from the latter. When Coste's French translation of the *Essay* appeared in 1700, Leibnitz wrote a notice of it for the *Monatlicher Auszug*, and entered on an extended critique of it — *The New Essays concerning Human Understanding* — which was completed in 1704, but, on account of Locke's death, not published.

40. Literature on Locke.

Locke's *Essay*, next to Kant's *Critique of Pure Reason*, has been the most influential single work in modern philosophy. It has called forth a literature which would itself make a good-sized library. The following are among the most important works on it:

Henry Lee's *Anti-Scepticism; or Notes upon each Chapter of Locke's Essay concerning Human Understanding.* London, 1702.

Leibnitz's *Nouveaux Essais sur l'Entendement Humain.* (Vol. 4, in Gerhardt's ed.)

Cousin's *La Philosophie de Locke*, 1829. English translations by Henry and by Wight.

Webb's *Intellectualism of Locke.* London, 1858.

Hartenstein's *Locke's Lehre v. d. menschl. Erkenntness in Vergleichung mit Leibniz's Kritik derselben.* Leipsic, 1865.

Marion's *Locke, sa Vie, son Oeuvre.* (Alcan), Paris, 1878.

Thos. Fowler's *Locke.* London, 1880.

Green's *Introduction to the Phil. Works of Hume.* London, 1874.

McCosh's *Locke's Theory of Knowledge, with a notice of Berkeley.* New York, 1884.

Kirchmann's *Erläuterungen zu Locke's Versuch über den menschlichen Verstand* (cf., also Schaarschmidt's *Erläuterungen zu Leibnitz's Neue Abhandlungen.*)

Fraser's *Locke* (in Blackwood's series). Edinburgh, 1890.

41. The function *della Crusca* (Page 98).

La Crusca, a celebrated academy of Florence, founded in 1582, for the purpose of maintaining the purity of the Italian language, that is to say, of separating the bran (*crusca*) from the flour: hence the name.

ARTICLE XVII.

42. The Law of Sufficient Reason.

This Article XVII was written by Leibnitz on Nov. 23, 1697, and was first published by Erdmann in 1841. It deals with the cosmological argument for the being of God and the problem of the *Theodicée*. The third sentence gives the key-note to the whole: "The *sufficient reason* of existence can be found neither in any particular thing nor in the whole aggregate or series." The principle of sufficient reason is fundamental in the philosophy of Leibnitz. His system, from one end to the other, is inspired by an unshaken and immovable faith in the authority of this principle. At the very end of his life he writes: "Plût à Dieu qu'on n'eût jamais supposé des principes moins claires! Ce principe est celui du *besoin d'une raison suffisante*, pour qu'une chose existe, qu'un événement arrive, qu'une vérité ait lieu" (*5th Let. to Clarke*, § 125). For other statements of the principle, cf. *Monadology*, §§ 32 f., *Theodicée*, §§ 44, 196. Cf. Nolan's *La Monadologie de Leibnitz*, p. 39 f.; Ueberweg's *Logik*, p. 270.

ARTICLE XVIII.

43. On the Consequences of Certain Passages in Descartes.

The occasion of the piece, to which this is a reply, was a passage in a letter to Nicaise, in which Leibnitz speaks of the evil consequences of Descartes' denial of final cause and of his view that matter takes successively all forms of which it is capable; and in which he also remarks: "Aussi peut-on dire, que *Spinoza* n'a fait que cultiver certaines semences de la Philosophie de Descartes, de sorte que je crois qu'il importe effectivement pour la Religion, et pour la piété, que cette philosophie soit châtiée par le retranchment des erreurs qui sont mêlées avec la vérité."

ARTICLE XIX.

44. On Nature in Itself.

The two questions handled in this essay are stated in § 2, *What is nature in itself?* and *Is there any energy or force residing in things?* The first he answers (§§ 2-8) by saying that Nature is the handiwork of an all-wise creator—the expression of the truths and ends of Absolute Reason. The second question, he answers (§§ 9 f.) by his doctrine that *to be* is *to act*.

45. Aristotle's Definition of Motion (Page 113).

Found in his *Physics*, bk. V.

46. Imaging and Intellectual Conception (Page 116).

The important distinction between imaging and intellectual conception, where imaging is impossible, was emphasized by Descartes (*Prin. Phil.*, I, 73, and *Med.* VI), Spinoza (*Emend. Intel.*), and Leibnitz (p. 188 and *Nouv. Essais*, II, c. 9, § 8, and c. 29). What absurdities one may be led into by a failure to keep this distinction in mind, may be seen by consulting Spencer's *First Principles*.

47. The Principle of the "Identity of Indiscernibles" (Pages 122-3).

This, as Leibnitz here remarks, is among his "new and most important axioms." He says in writing to Clarke (4, § 5.): "Ces grands principes de la *Raison suffisante* et de l'*Identité des indiscernables*, changent l'état de la metaphysique, qui devient reelle et demonstrative par leur moyen: au lieu qu'autrefois elle ne consistait presque qu'en termes vuides." Cf. also § 4 ff.; *Letter V*, §§ 21 f.; *Nouv. Ess.*, II, c. 27.

ARTICLE XX.

48. Leibnitz's Preface to his *Codex Diplomaticus Juris Gentium* (Page 127).

This *Preface* is so important for an understanding of Leibnitz's ethical views (cf. also his letter to Coste of July 4, 1706) that a translation of it is given here:

On the Notions of Right and Justice. 1693.

[From the Latin.]

I do not know whether, even after so many eminent writers have discussed them, the notions of *right* and of *justice* have been sufficiently cleared up. *Right* is a certain moral power, and *obligation* a moral necessity. Moreover,

I understand by *moral* that which among good men is equivalent to natural: for, as a celebrated Roman jurisconsult says, things which are contrary to good morals must be regarded as things which cannot be done. A *good man* moreover is one who loves all as much as reason allows. *Justice*, therefore, which virtue is the mistress of this affection, which the Greeks call *φιλανθρωπία*, we will define most properly, unless I am mistaken, as *the charity of the wise man* [*caritatem sapientis*], that is, charity according to the dictates of wisdom. Therefore, what Carneades is reported to have said, namely, that justice is the highest folly, because it commands us, neglecting our own interests, to care for the interests of others, comes from ignorance of the definition. *Charity* is universal benevolence, and *benevolence* is the habit of loving. Moreover to *love* is to take delight in the happiness of another, or, what amounts to the same thing, it is to account another's happiness one's own. Whence the difficult knot, which is also of great moment in theology, is untied, how there can be a disinterested love, which is free from hope and from fear, and from regard for personal advantage; it is evident that the joy of those whose joy enters into our own delights us, for those things which delight are sought after for their own sake. And just as the contemplation of beautiful objects is itself agreeable, and a painting by Raphael affects him who understands it, even if it brings no riches, in such a way that it is kept before the eyes and regarded with delight, as a symbol of love; so when the beautiful object is at the same time also capable of happiness, the affection passes over into true love. But the *divine love* surpasses other loves because God can be loved with the greatest success, since nothing is at once happier than God, and nothing more beautiful and more worthy of happiness can be known than he. And since he also possesses the highest power and wisdom, his happiness does not so much enter into ours (if we are wise, that is love him) but it also makes it. Since, moreover, wisdom ought to direct charity, there will be need of defining it also. I think, however, that the notions of men are best satisfied if we say that *wisdom* is nothing else than the science itself of happiness. Thus we are brought back again to the notion of *happiness*, to explain which this is not the place.

From this source flows *natural right*, of which there are *three grades: strict right* in commutative justice, *equity* (or charity in the narrow sense of the word) in distributive justice, finally *piety* (or probity) in universal justice: whence spring the rules, to injure no one, to concede to each his own, to live honorably (or rather piously), as well as the most general and commonly recognized precepts of right, just as I formerly outlined it in my youthful essay, *De Methodo Juris*.

The law of pure or *strict right* is, *No one is to be injured*, so that in the state no cause for action be given him, out of the state no right of war; whence comes the justice which philosophers call *commutative* and the right which Grotius calls *power*. The higher grade I call *equity*, or, if you prefer, charity (namely, in the narrower sense) which I extend beyond the rigor of bare right to those obligations also to the performance of which we may not be forced; such as gratitude, almsgiving, to which we have, according to Grotius, an *aptitude*, not a power. And just as it belonged to the lowest

grade to injure no one, so to the middle grade it belongs, *To do good to all;* but so far only as is fitting to each or so far as each deserves, so that it is not allowable to favor all equally. Thus this is the sphere of *distributive* justice, and the law of right here is that which commands to give to each his due [*suum cuique tribui*]. And thus far the political laws in the commonwealth extend which secure the happiness of the subjects, and along with this bring it about that those who had only aptitude acquire power, that is, that they are able to demand what it is fair that the others perform. And while in the lowest grade of right the differences among men were not regarded, except those which arise from the affair itself, but all men are held as equals, now, however, in this higher grade, deserts are weighed; whence privileges, rewards, punishments have their place. This difference in the grade of right Xenophon has excellently sketched, with the boy Cyrus as example, who, chosen as judge between two boys, the stronger of whom had exchanged coats with the other by force, because he had found the coat of the other more fitting to his figure, and his own coat to the figure of the other, had pronounced in favor of the robber: but it was pointed out by his teacher that the question here was not as to which the coat might fit, but to which it belonged, and that this form of giving judgment could only then be employed rightly, when he himself had coats to be distributed. For equity itself commends to us strict right in affairs, that is, equality among men, except when a weighty reason of greater good commands us to recede from it. Moreover, what is called regard of persons has its place not in exchanging the goods of others, but in distributing our own or the public goods.

The highest degree of right I have called by the name of probity or rather *piety*. For what has been hitherto said can be so understood as to be confined within the consideration of mortal life. And, moreover, pure or strict right springs from the principle of the preserving of peace; equity or charity extends to something more; so that while each one benefits the other as much as he can, he increases his own happiness in that of another; and, in a word, strict right avoids misery, the highest right tends to happiness, but happiness such as belongs to this mortality. But that we ought to place life itself and whatever makes this life desirable, after another's great good; that, moreover, the greatest griefs ought to be endured for the sake of others; this is more beautifully taught by philosophers than solidly demonstrated. For the honor and glory and joyous feeling in the virtue of one's own soul, to which, under the name of honor, they appeal, are goods of thought or of the mind, and, moreover, have great superiority, but not with all and for all bitterness of evils, since not all are equally affected by the imagination; especially those whom neither a liberal education nor a free-born mode of living or the discipline of life or of rank to the estimation of honor has surely accustomed to discerning the goods of the soul. But that it may be settled by a general demonstration that all that is worthy is useful, and all that is base is injurious, the immortality of the soul, and the director of all, God, must be assumed. Thus it is that we know that we all live in the most perfect state under a monarch who on account of his wisdom cannot be deceived and on account of his power cannot be eluded; and he too is so lovable that

to serve such a master is happiness. Therefore, he who applies his soul to this, Christ teaching him, wins it. By his power and providence it comes to pass that all *right* passes over into fact, that no one is injured except by himself, that nothing done rightly is without its reward, no sin without punishment. Since, as Christ has divinely taught, all our hairs are numbered, and even a cup of water is not given in vain to one thirsting, so nothing is neglected in the Commonwealth of the Universe. It is from this consideration that it is called *universal justice* and includes all other virtues; for that also which otherwise does not concern the interest of another, namely, that we do not misuse our body or our means, this is also forbidden outside of human laws, by natural right, i. e., by the eternal laws of the divine monarchy, since we are indebted to God for ourselves and for what we have. For as it is to the interest of the State so it is much more to that of the Universe that no one use badly his own. Here, therefore, that highest law of right receives its force, which commands us *to live honorably* (i. e., piously). And in this sense it is rightly put among the things to be demanded of learned men, that the natural right and the right of nations be taught according to the doctrine of Christians, that is (from the example of Christ) *τὰ ἀνώτερα*, the sublime, the divine of the wise. Thus we seem to ourselves to have explained most fitly the three laws of right, or three degrees of justice, and to have pointed out the sources of natural right.

ARTICLE XXI.

49. The Ontological Argument for the Being of God.

On this celebrated argument consult Anselm's *Proslogion* and *Liber contra Insipientem*, i. e., *Liber Apologeticus* (a translation of the *Proslogion* will be found in the *Bibliotheca Sacra*, vol. VIII., pp. 534–553; see also the French translation, with notes, by Bouchitté, *Le Rationalisme Chrétien*, Paris, 1842); Gaunilo's *Liber pro Insipiente;* Thomas Aquina's *Sum. Theologia;* Descartes' *Meditations*, V; *Replies to Objections*, especially those to objections 1 and 2; *Principles of Philosophy*, I, §§ 14 f.

The Anselmic form of the argument may be stated thus: We have as a fact the idea of the greatest possible or PERFECT BEING; an *actually* existing being (*in re esse*) has more perfection than an ideally existing one (*in intellectu esse*); therefore God exists. In other words, the most perfect *conceivable* being must be *actual:* otherwise a property—that of actuality, or objective being—is wanting.

Descartes' additions to this argument consist in showing that the idea of God is a *necessary* idea of the reason: that it is an idea of a real infinite and could not have originated in us or from any finite source; that when we think of God, we must think of him not merely as existing, which we do with everything while we are thinking of it, but as *necessarily* existing. Descartes' argument may therefore be stated thus: We have among the necessary ideas of the reason the idea of Absolute or All-perfect Being; this idea contains as one of its elements *necessary existence;* therefore, God exists.

Spinoza (letter to DeVries) has stated the basis of the ontological argument thus: "The more reality a being or thing has, the more attributes must be assigned to it and *the more attributes I assign to a thing, the more I am forced to conceive it as existing.*"

For remarks by Leibnitz bearing on the argument, see Articles III, p. 29; VII, p. 50; XXI, XXXVI, p. 356; and the *Letters to Jacquelot* (Gerhardt, vol. 3, pp. 442f.).

He claims: (1) That the idea of God is peculiar in this, that if it is of a being possible in fact, then that being must actually exist. But is the idea of God the idea of a being possible in fact?

(2) That merely because we have the idea of God it does not therefore follow that he actually exists. We have ideas of things which *cannot actually exist.* It must therefore be shown that the idea of God is a true idea, that is, the idea of a *possible* being. Descartes failed to do this. [That Leibnitz is in error here may be seen by examining Descartes' *Reply to the Second Objection,* where Descartes allows that it must first of all be proved that the conception of an infinite being is possible, and does not contain a contradiction; but shows that such a proof need occasion no difficulties.]

(3) Everything is to be held possible until its impossibility is proved. Hence there is a presumption in favor of the actual existence of God.

(4) This presumption is more than a presumption: it is a fact that God is possible. This is shown, pp. 137–138.

For Locke's examination of Descartes' argument, see Lord King's *Life of Locke,* Vol. II, pp. 134 seq. On the worth of the argument itself, cf. Kant's *Critique,* Flint's *Theism,* Dorner's *System of Christian Doctrine,* and the essays by Huber, Elvenich, Jahnke, and the works named in note 5. For somewhat elaborate studies on the theism of Descartes and on the theism of Leibnitz, consult Saisset's *Modern Pantheism.*

ARTICLE XXII.

50. The Doctrine of a Universal Spirit.

This essay was written at Charlottenburg, near Berlin, for the instruction of Queen Sophia Charlotte. This accounts for its popular tone.

51. Molinos, Angelus Silesius and Weigel (p. 140).

Molinos (c. 1627–1696), celebrated Quietist, born in Spain, lived and died at Rome. Author of the celebrated *Guida Spirituale.* Cf. Bigelow's *Molinos the Quietist,* New York, 1882, and Shorthouse's novel, *John Inglesant.*

Angelus Silesius, John Angelus of Silesia, to whom Leibnitz refers several times, author of a number of devotional pieces.

Weigel (1531–1588), a theologian and author of several theological works.

ARTICLE XXIII.

52. The Non-Sensuous Element in Knowledge (p. 149).

This interesting letter to Queen Charlotte, now for the first time published by Gerhardt, shows in a popular way the impossibility of pure empiricism

and presents in brief Leibnitz's views on this most important subject. It is interesting to notice in how many respects Leibnitz anticipates Kant. His views are more fully given in the *Nouveaux Essais.* See also Kirchner's *Leibniz's Psychologie,* Cöthen, 1876.

ARTICLE XXIV.

53. Lady Masham.

Lady Masham was the daughter of Cudworth and the friend of Locke. In her house, at Oates, Locke spent his last years. She was the author of one or two religious books. The letters which passed between her and Leibnitz are given in full by Gerhardt.

ARTICLE XXV.

54. Proof of the Existence of God from the Doctrine of Pre-established Harmony (p. 165).

Leibnitz often urges this "new argument for the existence of God." "The agreement of so many substances, one of which has no influence upon another, could only come from a general cause, on which all of them depend, and this Cause must have infinite power and wisdom to pre-establish all these harmonies."

ARTICLE XXVI.

55. Contingency and Necessity.

On this important subject see further remarks in the *Letters to Clarke* and in the *Nouveaux Essais,* II, c. 21. Cf. note 11.

56. Sevennese Prophets (p. 173).

This last paragraph is an allusion to a passage in the letter of Coste to Leibnitz (Gerhardt, vol. 3, p. 393), in which he tells of certain Sevennese mystics who were then creating a sensation in London by their pretended prophecies; one of them being a gentleman of good character and possessed of an income of £2000. *Fatio* was a cultivated Swiss gentleman residing in London.

ARTICLE XXVII.

57. "The Refutation of Spinoza by Leibnitz."

Among the manuscripts of Leibnitz in the royal library at Hanover is one entitled *Animadversiones ad Joh. Georg. Wachteri librum de recondita Hebræorum philosophia.* This, accompanied by a French translation and an introduction, was published at Paris in 1854 by Foucher de Careil under the title *Refutation Inédite de Spinoza par Leibniz.* The editor's preface and the introduction treat of the relation of Leibnitz to Spinoza. The portion of the work (about two-thirds of the whole) which treats of Spinoza, and which led the editor to give to the whole such a pretentious title, is here translated.

58. Malcuth in Malcuth (p. 183).

Cf. Theodicée, III, § 372.

ARTICLE XXVIII.

59. Remarks on Locke's *Examination of Malebranche.*

The work by Locke which is here examined was published in 1706, after his death, and will be found in the second volume of Bohn's edition of Locke's works. Locke and Malebranche stood at the opposite poles of thought and Leibnitz would naturally be interested in a criticism of the latter by the former. This Article XXVIII seems to consist of first-hand jottings made while reading Locke's work. The date at which they were made is uncertain, but it must have been after 1706, and was not improbably 1708.

ARTICLE XXIX.

60. Leibnitz on the Nature of the Soul.

This Article is one of very great importance for the understanding of the Leibnitzian doctrine. He explains here his conception of the soul and the nature of perception.

61. The Different Classes of Monads (p. 191).

This Article assists us in distinguishing the various classes of monads, or different degrees of monad development, which are recognized by Leibnitz:

I. All monads are alike:

(1) In being simple, ultimate, veritable unities; ingenerable and indestructible realities.

(2) In that each is essentially energizing power, force, active principle.

(3) In that each possesses the power of *perception* and reflects (mirrors) in its way the whole universe. "The representation of the external in the internal, of the composite in the simple, of multiplicity in unity, constitutes in reality *perception* (§ 3)."

II. According as they are or are not *monades reines ou dominantes*, have or have not *organizing* power over others, they are divided thus:

- Monads
  - Simple (1).
  - Dominating or ruling
    - Entelechies or *monades vivantes* (2).
    - Souls
      - Animal souls (3).
      - Rational souls (4).

III. According as they possess or do not possess *sentiency*, they are divided thus:

- Monads
  - Non-sentient
    - Simple monads (1).
    - Entelechies or *monades vivantes* (2).
  - Sentient
    - Animal souls (3).
    - Rational souls (4).

IV. According as they do or do not possess *self-consciousness*, they are divided:

- Monads
  - Merely perceptive
    - Lacking memory
      - Simple Monads (1).
      - Entelechies (2).
    - Possessing memory
      - Animal souls (3).
  - Self-conscious
    - Rational souls (4).

V. Results. There are four kinds of monads:

1. Simple monads, lacking self-consciousness, memory and organic capacity.

2. Dominating or organizing monads (*monades reines ou âmes vivantes*), lacking memory and self-consciousness. These and the simple monads are the *sleeping* monads ; they perceive unconsciously and without feeling.

3. Animal souls. These organize and possess memory, but lack self-consciousness. They are *dreaming* monads.

4. Rational souls. These have organizing capacity, memory, and, in addition, self-consciousness and the power of recognizing necessary truth : in a word, they are personalities. They are *waked up* monads.

Does a monad of the lower class ever pass into the higher classes? One of Leibnitz's correspondents, Remond, writes to him on Jan. 9, 1715, and asks, among others, the following questions: "Comment (physiquement parlant et sans emploier des termes abstraits ni metaphoriques), par quels moiens, par quels degrez une monade centrale et dominante qui constitue dans un certain tems un animal, peut venir dans un autre à faire ou plustot à estre un Monsieur de Leibniz?" To this Leibnitz replies as follows: "Puisqu'on peut concevoir que par le developpement et changement de la matiere, la machine qui fait le corps d'un animal spermatique, peut devenir une machine telle qu'il faut pour former le corps organique d'un homme: il faut qu'en même temps l'ame de sensitive seulement soit devenue raisonnable, à cause de l'harmonie parfaite entre l'ame et la machine. Mais comme cette harmonie est preétablie, l'etat futur etoit déja dans le present, et une parfaite intelligence reconnoissait il y a long temps dans l'animal present l'homme futur, tant dans son ame à part, que dans son corps à part. Ainsi jamais un pur animal ne deviendra homme, et les animaux spermatiques humains, qui ne viennent pas à la grande transformation par la conception, sont de purs animaux."

62. Genii (Page 192).

By *genii* Leibnitz means *angels* and *arch-angels*.

ARTICLE XXX.

63. Leibnitz's *Theodicée*.

This work, as is well known, was written by Leibnitz in memory of Queen Sophia Charlotte of Prussia, and grew out of conversations and discussions with her on the problems of liberty and of evil, occasioned by the objections she found in Bayle's *Dictionary*. It is the only large work by Leibnitz published in his life-time. Although written in a popular style and diffuse, it is unquestionably the most celebrated work on the subject. The work itself consists of (1) a Preface ; (2) an Introductory Discourse on the Conformity of Faith with Reason ; (3) the body of the work, in three parts, the first on the nature of evil in general, the second on moral evil, the third on physical evil ; (4) an Index ; (5) the Abridgment, here translated ; (6) an Examination of Hobbes' work *Questions concerning Liberty, Necessity and Chance* ; (7) Remarks on a work by King on *The Origin of Evil* ; (8) a more extended abridgment of the work in Latin.

An excellent abridgment of the body of the work, with critical and explanatory notes, has been issued by Th. Desdouits : *Essais de Theodicée de Leibniz. Extraits relies entre eux par de courtes analyses, precedes d'une introduction et d'une analyse generale, et accompagnes d'appreciations critiques*, Paris, 1878.

Two excellent articles on Leibnitz's *Theodicy* will be found in the *Andover Review*, vol. 4.

64. Leibnitz's Optimism.

The last word of the Leibnitzian philosophy is that, all things considered, the actual is the best possible world. The doctrine as it bears upon the problem of human existence is well set forth in the apologue of the *Theodicée* (§§ 405–417) in the story of Sextus. Consult on this subject in general, besides the *Theodicée*, the *Monadology* (§ 53 seq.), *The Principles of Nature and of Grace*, the *Letters to Clarke*, Nolan's *La Monadologie*, onzieme eclaircissement, Fischer's *Leibniz*, pp. 576–598, and Erdmann, Nourisson, and Feuerbach.

ARTICLE XXXI.

65. Leibnitz's Rules for the Conduct of the Mind and the Increase of Knowledge.

Compare with this article Erdmann's edition of Leibnitz's phil. works, Articles XXVI, *De vero methodo philosophiæ et theologiæ;* LIII, *Preceptes pour avancer les Sciences;* and LIV, *Discours touchant la Methode de la Certitude et l'Art d'Inventer, pour finir les Disputes et pour faire en peu de Tems de grands Progrès;* and the *Nouveaux Essais*, IV, chap. 12, *Des Moyens d'Augmenter nos Connaissances.*

Leibnitz's thoughts on this subject may be compared with Descartes' (*Discours de la Methode; Regles pour la Direction de l'Esprit*); Spinoza's (*De Emendatione Intellectus*); and Locke's (*Conduct of the Understanding*, and the *Essay*, bk. 4, c. 12, *Of the Improvement of Our Knowledge*).

ARTICLE XXXII.

66. The Principles of Nature and of Grace.

During Leibnitz's residence in Vienna (1712–1714) he was asked by Prince Eugene of Savoy to give in a short compendium his philosophical system as an aid to the understanding of the *Theodicée*. With this object in view he composed *The Principles of Nature and of Grace, founded on Reason.* A copy of the essay, which was prepared with the utmost care, he sent to Nic. Remond, at Paris, with a letter (Vienna, Aug. 26, 1714), in which he writes: "J'ay esperé que ce petit papier contribuerait à mieux faire entendre mes meditations, en y joignant ce que j'ay mis dans les Journaux de Leipzig, de Paris, et de Hollande. Dans ceux de Leipzig je m'accommode davantage au style des Cartesiens, et dans cette derniere pièce je tache de m'exprimer d'une maniere qui puisse être entendue de ceux qui ne sont pas encore trop accoutumés au style des uns et des autres."

ARTICLE XXXIII.

67. The Monadology.

This epitome of Leibnitz's philosophy was written very shortly after the *Principles of Nature and of Grace*, and has, until recently, been confounded with it as the work written for Prince Eugene. It is the most complete statement of Leibnitz's system and merits the most careful study. Erdmann

calls it *librum Leibnicii omnium gravissimum*. There are a number of annotated separate editions of it, especially in French. The best of these are Nolan's *La Monadologie de Leibniz, avec des eclaircissements et des notes historiques et philosophiques*, Alcan, Paris, 1887; and Boutroux's *La Monadologie de Leibniz, etc.*, Delagrave, Paris, 1881. Zimmerman's German translation, with notes, may also be profitably consulted. It should be said that the original manuscript is without a title and that the title, *The Monadology*, was given it by Erdmann, who published for the first time the original French text in his *Leibnitii Opera Philosophica*, Berlin, 1840; before that time it had been known only in a German translation.

68. Analysis of The Monadology.

The following analysis may assist in understanding the *Monadology*. It should, however, be remembered that the thought is so condensed that no very satisfactory analysis of it can be given.

Part I.

Substance (or Monad), §§ 1–30.

1. Existence and Simplicity, 1–3.
2. Indestructibility, 4–6.
3. Inner Principle of their Activity, 7–13.
4. Perceptions of the Monads, 14–18.
   (1) Perception, what; distinguished from apperception, 14–16.
   (2) Inexplicable mechanically, 17.
   (3) Therefore, monads are actualized perfections or entelechies, 18.
5. Kinds of Monads, 19–30.
   (1) Sleeping monads, 19–24.
   (2) Dreaming monads, 25–27.
   (3) Waked up or rational monads, 28–30.

Part II.

Principles of Reason and their source in Absolute Reason, God, §§ 31–48.

6. Principles of Reason and their source, 31–37.
7. God, the Principle of Principles, on whom all contingent things and even necessary truths depend, 37–48.

Part III.

The Preëstablished Harmony and the Best Possible Universe, §§ 49–90.

8. Preëstablished Harmony, what; it accounts for the apparent interaction of the monads, 49–52 and 56.

9. Why there is a preëstablished harmony; the actual world the *best possible*, 53–55.

10. It accounts for variety and unity; each monad mirrors the universe, 56–62.

11. Every particle of matter is a fullness of vital monads; there is life everywhere, 63–70.

12. Souls are not composite; they always have bodies, which change gradually. Souls and bodies are alike ingenerable; generation is but a *development* and death an *envelopment*, 71–77.

13. Hierarchy of the monads: kingdoms of efficient cause, of final cause, and of grace; harmony of the three, 78–90.

(1) Preëstablished harmony between the kingdoms of efficient causes and of final causes, 78–82.

(2) The kingdom of grace—society of free personalities—and the absolute harmony and perfect system, or "City of God," 83–90.

ARTICLE XXXIV.

69. Remond de Montmort.

Nicolas Remond, de Montmort, was *Chef des Conseils de M. le Duc d'Orleans*. He was a great admirer of the Platonic philosophy and on reading Leibnitz's *Theodicée* became a great admirer of him also, and carried on a correspondence with him on philosophical subjects. For this, see Gerhardt's third volume. This letter (Art. XXXIV) is of especial importance, as in it Leibnitz takes occasion to explain the points of contact and of divergence between his own system and those of Malebranche on the one hand and of Descartes on the other.

ARTICLE XXXV.

70. Leibnitz's Correspondence with Clarke.

The occasion of this correspondence Leibnitz describes in a letter (Dec. 23, 1715) to Wolff, thus: "The Princess of Wales [Wilhelmina Charlotte of Ansbach], who had read with pleasure my *Theodicée*, fell into a controversy over it, as she herself informed me, with a prelate who frequented the Court. He afterward handed the Princess a paper written in English in which he defended the Newtonian system and attacked mine. I answered him briefly and sent the answer to the Princess." The correspondence extends to five letters on each side and was terminated by the death of Leibnitz. It was published in 1717 by Clarke, who gave an English translation (here reprinted) side by side with Leibnitz's French. The words in [ ] in the *Fifth Letter* (except the words *of sense*, § 84, *our notion of*, § 87, *without diminution* § 99, *an order* and *merely*, § 104, *general*, § 107, which were added by Clarke) are additions or changes made by Leibnitz himself in a second copy. They are here inserted in Clarke's translation.

These letters belong to the most important documents on Leibnitz's philosophy, as in Clarke he found an antagonist worthy of him, who pointed out the weak points in his system. For lack of space the letters of Clarke, which are accessible to the student in Clarke's own works, are omitted here.

ARTICLE XXXVI.

71. The *Nouveaux Essais*.

For the occasion of Leibnitz's writing the *Nouveaux Essais* and for the literature bearing on it, see notes 39, 40, 3. The work itself is a dialogue between Philalethe, representing Locke, and Theophile, representing Leib-

nitz. Locke's *Essay* is followed chapter by chapter and almost paragraph by paragraph. The French style of the work is so poor as to render a readable translation almost impossible. The extracts translated are from the remarks of Theophile alone, and it is hoped that they will convey some general idea of the nature and value of the work and do something toward awakening a demand for an English rendering of the whole. An excellent translation by Mr. A. Langley was begun in the *Journal of Speculative Philosophy*, in 1885, and it is greatly to be hoped that it will be completed and published in book form.

In Gerhardt's text, §§ 5–18 of the first chapter are placed between § 26 and § 27. In the translation, the order adopted by Erdmann and Janet has been followed as it accords with the order of Locke's *Essay*. The headings in [ ] of the §§ are inserted from Locke's *Essay;* they are not in Leibnitz's text.

72. Analysis of the Second Chapter of Bk. I. of the *Nouveaux Essais*.

"The controversy between Locke and Leibnitz in the first book of the *Nouveaux Essais sur l'Entendement Humain* relates to the famous question of the origin of ideas. Locke represents the empirical school. Leibnitz the rationalistic school. The first maintains the hypothesis of the *tabula rasa*, the second the hypothesis of *innate ideas*. It can be said that they have each exhausted the question and that they have said all that could be said at their time, at least in the terms in which the question was then stated: for since then it has been presented under different forms. In order to leave to the arguments of the two authors all their force we shall reproduce them as far as possible under their form and in their order, afterwards we shall give a résumé, in condensing the whole discussion:

Locke's 1st Objection.—If innate principles existed all men ought to agree on them; now this universal consent does not exist even for the principles of identity and of contradiction; for there is a large part of the human race to whom these principles are unknown. And, further, did this consent exist it would prove nothing, could another way be shown than that of innateness by which men might have arrived at this uniformity of opinion.

Leibnitz's Reply.—I do not base the certainty of innate principles upon universal consent, which, moreover, might in fact arise in another way. This consent is an *intimation* and not a demonstration of the innate principle; but the exact and decisive proof of these principles consists in showing that their certainty comes only from what is in us. Even should they not be known, they would not cease to be innate, because they would be recognized as soon as they have been understood. But fundamentally everybody knows them and they are at each moment employed without being expressly recognized; it is very much the same as when one has virtually in the mind the propositions suppressed in enthymemes.

2d Obj.—To say that there are truths imprinted on the soul which it does not perceive is a real contradiction.

Reply.—I think that we have a multitude of knowledges of which we are not always aware even when we have need of them.

3d Obj.—It could then be said that all reasonable propositions are innate.

Reply.—I acknowledge this as regards pure ideas. In this sense it can be said that the whole of arithmetic and of geometry is innate, although it is true to say that one would not be aware of the ideas under consideration unless one saw or touched something. . . . for we could not have abstract thoughts which do not have need of something sensible. This does not prevent the mind from deriving necessary truths only from itself. Only there are degrees in the difficulty of perceiving what is in us.

4th Obj.—Latent perceptions suppose at least memory: undoubtedly there may be in the soul what is not perceived there; but it must always be that this has been learned and been formerly known.

Reply.—Why could it not have still another cause? For, since acquired knowledge can be concealed there by the memory, may not nature also have concealed there some original knowledge? This would be *natural habits*, active and passive dispositions and aptitudes, rather than a *tabula rasa*.

5th Obj.—But innateness does not differ from the simple capacity of knowing.

Reply.—The mind is not only capable of knowing them but also of *finding them in itself*, and if it had but the simple capacity, or passive power, it would not be the *source of necessary truths*. The mind has a disposition *to take them* itself from its own *depths*.

1st Instance.—But do the words *to be in the understanding* signify anything else than *to be perceived by the understanding?*

Reply.—They mean something entirely different. It is enough that what is in the understanding can be found there and that the sources or original proofs of these truths are in the understanding alone.

2d Instance.—But the consent which the mind gives without effort to these truths depends on the faculty of the human mind.

Reply.—Very true; but it is the particular relation of the human mind to these truths which renders the exercise of the faculty easy and natural in regard to them, and which causes them to be called *innate*.

6th Obj.—Truths are posterior to ideas; now the ideas come from the senses.

Reply.—The intellectual ideas which are the source of necessary truths do not come from the senses.

7th Obj.—Particular propositions are more evident than general propositions; and nevertheless they come from the senses; for example, to say that *to be yellow is not to be sweet*, is as evident, if not more so, as to say, that *it is impossible for a thing to be and not to be at the same time.* Shall we say then that all our sensations are innate?

Reply.—The one is the principle (namely, the general maxim); and the other is but the application. As for the rest, this proposition, *sweet is not bitter*, is not innate; for the sensations of sweet and of bitter come from the external senses; but it is a mixed conclusion (*hybrida conclusio*) where the axiom is applied to a sensible truth. As for the general maxim, it is therewith understood, just as the major which is suppressed in enthymemes. We do not always think distinctly of that which we do.

Instance.—But it seems that general and abstract ideas are more foreign to our minds than particular notions and truths.

Reply.—It is true that we begin sooner to perceive particular truths; but this does not prevent the order of nature from beginning with the most simple, and the reason of the more particular truths from depending on the more general

8th Obj.—Does not immediate acquiescence in certain truths come from the very nature of the things themselves, rather than from the propositions being graven naturally in the mind?

Reply.—Both are true. The nature of things and the nature of the mind agree here; and very often the consideration of the nature of things is nothing else than knowledge of the nature of our mind.

9th Obj.—It seems that if there are innate truths it is not necessary to learn them since they are known in advance. But it is necessary at least to learn the names and the words by which the truths are expressed.

Reply.—I agree to this; but I could not admit the proposition that all that is learned is not innate. The truth of numbers is in us, and yet we do not omit learning them.

10th Obj.—But how does it happen that children have no knowledge of these truths which are supposed to be innate and to make part of their minds? If this were so, nature would have taken the trouble for nothing.

Reply.—The perception of what is in us depends on attention and order. Now, not only is it possible, but it is even befitting, that children pay more attention to the notions of the senses, because attention is regulated by need.

Same objection, § 27.—"If general maxims were innate they ought to appear with more clearness in the minds of certain people. I speak of infants, idiots and savages; for of all men they have the mind least altered and corrupted by custom."

Reply.—I believe we must reason otherwise. Innate maxims appear only through the attention which is given to them; but these persons exert none or exert it for very different objects: they think of almost nothing save of the needs of the body, and it is reasonable that pure and detached thoughts should be the prize of more noble pains. I should not like so much honor to be paid to barbarism and ignorance.

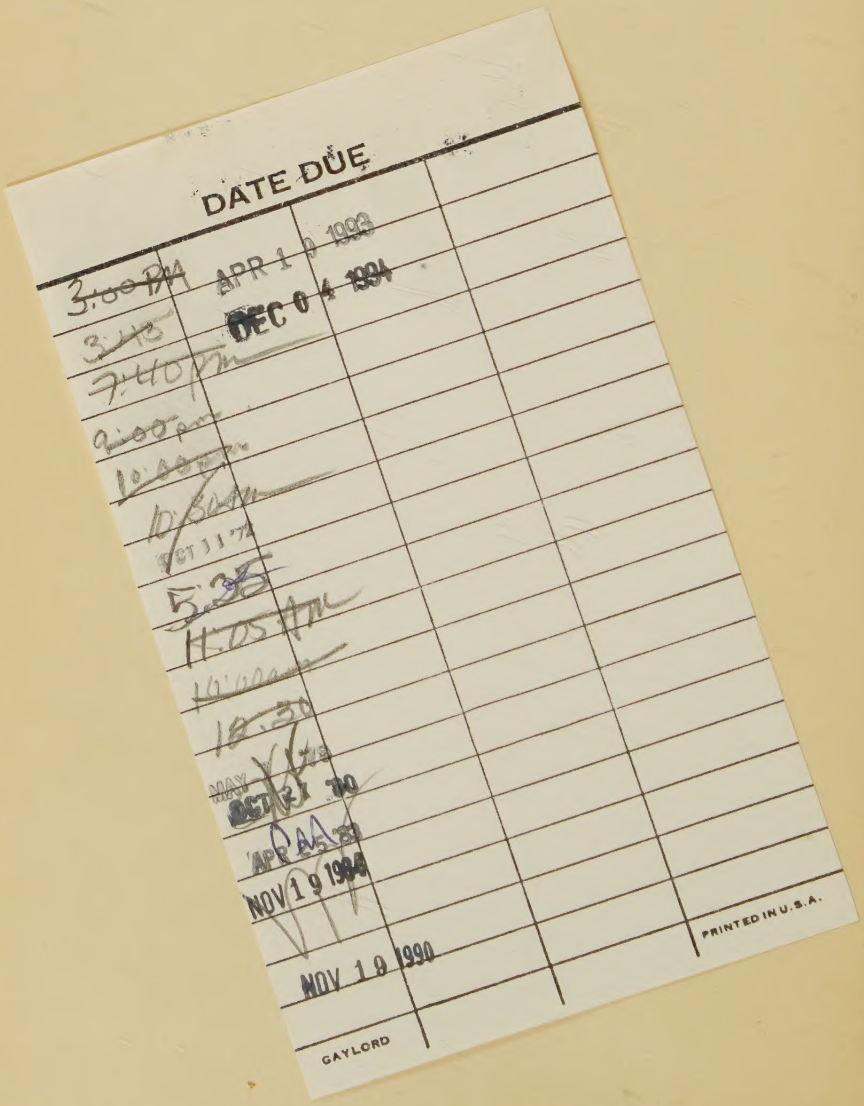
11th Obj.—If there are innate *truths*, must there not be innate *thoughts*?

Reply.—Not at all, for thoughts are actions; and truths are habits or dispositions; and we know many things of which we scarcely think. To say that a truth cannot be in the mind without it having thought of it, is to say that there cannot be veins in marble before they are discovered there.

Leibnitz had already employed this comparison of the marble in a passage with which we close this analysis of the chapter: for it is the best résumé of his whole doctrine (*Preface to the Nouveaux Essais, p. 291*): "If the soul resembled these blank tablets (*tabula rasa*), truths would be in us as the figure of Hercules is in a block of marble when the marble is wholly indifferent to receiving this figure or some other. But if there were veins in the stone which indicated the figure of Hercules in preference to other figures, this stone would be more determined to it, and *Hercules would be there as innate in some sort*, although it would be necessary to labor to discover the veins and to cleanse and polish them, by cutting away that which prevents them from appearing. It is thus that ideas and truths are innate in us, as inclinations, dispositions, *habits* or natural *capacities* and *not as actions*."
—Prof. PAUL JANET, *Nouveaux Essais*, livre I, Paris, 1886.

ADDENDUM.

Add to Note 38: The illustration is found in a note to Geulincx's Γνῶθι σεαυτὸν, *sive Ethica*, first published at Amsterdam in 1665. Cf. Erdmann's *Gesch. d. Phil.*, § 267, 8.


DATE DUE
APR 1 0 1993
DEC 0 4 1994
NOV 1 9 1996
NOV 1 0 1998
PRINTED IN U.S.A.
GAYLORD

UNIVERSITY OF THE PACIFIC LIBRARY

Leibnitz, Gottfried W.
Philosophical works.

B
2558
1890

41281